

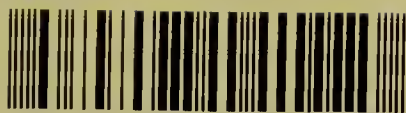
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THE MEAT INDUSTRY
AND
MEAT INSPECTION

THE MEAT INDUSTRY AND MEAT INSPECTION

A COMPREHENSIVE ACCOUNT OF THE PRINCIPAL
ANIMALS AND FISH, INCLUDING CATTLE, SHEEP,
PIGS, POULTRY AND GAME, SUPPLIED TO THE
BRITISH MEAT MARKET, TOGETHER WITH
A DESCRIPTION OF THE VARIOUS IN-
DUSTRIAL PROCESSES CONNECTED
THEREWITH AND THE SCIENTIFIC
INSPECTION OF MEAT

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AND FOOD TRADES

THIRTY-FIVE COLOURED PLATES
ONE THOUSAND ILLUSTRATIONS

VOLUME IV

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LIST OF ABBREVIATIONS

M.O.H. = Medical Officer of Health.

L.G.B. = Local Government Board.

CHAPTER I

MEAT INSPECTION IN VARIOUS CENTRES

Introductory. Having now considered the general principles upon which meat inspection may be conducted, as well as the actual conditions with which the meat inspector is most commonly brought into contact, we have to turn our attention to the description of what is actually done in this matter in different parts of the world as well as in the principal centres of the meat industry in our own country. We shall naturally devote most of our space to the latter aspect, but at the same time it will be extremely instructive to know in a little detail the manner in which these matters are dealt with by the authorities in one or two lands other than our own. This is the more necessary for the reason that in most other countries there has already been adopted a uniform standard of inspection, although that standard is not always identical in different places. Pursuing this idea, we may take as examples of what we may term foreign practice such important centres as Chicago—which is, perhaps, the largest meat market of the world—Paris, and Berlin.

Having dealt with these we shall then proceed to state what is the present condition of affairs in the great majority of all the important centres of the meat industry in Great Britain. This latter section has been made possible only by the very cordial help accorded to the writer on the part of a large number of municipal authorities, the medical officers of health, and veterinary inspectors, to all of whom we would again here express our most cordial thanks. In a large number of these instances the account of the local meat inspection is given in the actual words of the M.O.H., or of the Chief Veterinary Inspector, supplied especially for this work or sent to the authors in the shape of an annual report for their district. In many other instances the necessary details have been obtained by a considerable number of visits to the centres in question, and, in others, as the result of an extensive correspondence with those who are interested with the work in question. Most of these local accounts are given without criticism, for the simple reason that it would be quite unfair to criticise in one case and not in another, in the absence of uniform instructions on the part of the authorities; indeed, it is in the differences which are to be found that the instructiveness of such an account lies. In many cases the writers are their own critics, or rather the critics of the conditions under which they carry on their work, and they point out many improvements which might be made and many disadvantages under which they labour.

In the various reports from these sources will be found many examples

of how to arrange the matter which forms the inspector's report. Not the least interesting feature is the relative frequency of the causes of condemnation in the various parts of the country, and these detailed lists will give much information to inspectors and others. The problems which these details raise have been dealt with in other parts of this work, and are here left to speak for themselves in the language of those who have to deal with them. It is only by such a comparative study of local conditions that any true conception of the subject in this country can be obtained.

It has only to be added that, as far as Great Britain is concerned, the centres dealt with in the following pages represent most, if not all, of the best managed that the country has to offer, and further that for every town that is managed and controlled in the way described for most of those reported, there are hundreds of other smaller towns and innumerable country districts, where there is a vastly inferior state of affairs, and often no inspection at all. If the reader will inquire what is done in this respect in his own district the extent of this truth will probably surprise him.

We may now turn our attention to the details of these localities, taking first three great foreign centres with which comparisons may be made.

FOREIGN CITIES: CHICAGO, BERLIN, PARIS

Chicago. The greatest slaughtering centre in the world is Chicago, where an enormous trade in pork packing and meat production is carried on. The combined capacity of the packing-houses located at the stock-yards is about 60,000 pigs per day, and the chief articles of commerce from the yards comprise dressed pigs, cured meats, canned meats, dressed beef, beef, hides, wool, pork, lard, cheese, butter, &c.

All day long strings of oxen and pigs link up the prairie with the city, and all day long steam, gas, compressed air, and electricity are being applied to the manipulation of the slaughtered animals. The abattoirs and packing-houses echo continuously to the tumult of machinery and the whirl of electric bells, for science is the leading factor in the management of every one of them. The packing-house proprietors, however, discourage excessive driving of animals meant for slaughter, for animals suffering from mental or physical excitement are not fit for killing. Drovers are warned against beating or otherwise subjecting the animals to ill-usage, and, to make sure that everything is right, twenty-four hours' rest is generally allowed the animals before they are driven to the slaughtering-pens. A good system of inspection by Government officials is carried out both with the live animals and also afterwards with the dead carcasses, and nothing but first-class quality is allowed to get into the market for human consumption.

Handling the Pigs. In the pork packing-houses the pigs are driven in lines to the shackling-pen, where loose chains are shackled round one of the hind legs. At the further end of each chain is a hook, which in

turn is placed in a ring attached to a 12-ft. diameter revolving drum. This revolving drum lifts the pigs in a vertical position at the rate of about a dozen per minute and drops them on to the track-bar, which is carried at from 4 to 5 in. from the face of the drum. The pigs slip down the slightly inclined bar by their own weight and are slaughtered one by one as they pass the operator.

It must be remembered that the pigs in the first instance walk to the top storey of the packing-house by means of inclined gangways, and from there are worked, after killing, down to the lowest storey. The carcase works its way, stage by stage, by the simple law of gravitation.

After the pigs are slaughtered they pass on through the bleeding-passage into the hands of other workers. Each one does his share in handling the carcasses, and, owing to the fact that each man familiarises himself with the particular duty he has to perform, the work goes on rapidly. The carcasses pass from the bleeding-passage to the scalding-tank, thence on to the scuttling-table, and from there to the singeing-furnace, where the last vestiges of hair are removed. From the singeing-furnace to the track-bars is an easy transition, and then the process of dissection begins. Bacon is usually made from singed pigs, but if pork is wanted the carcasses pass the singer and are cut up in the scalded state. The by-products are very numerous, and involve much skill in preparation.

Handling the Cattle. Cattle are treated in very much the same fashion. They are driven to the pens on the top of the building, rested, and then made to walk in single file along narrow gangways to the killing-pen. The operator from an elevated position, and with unerring aim, fells them with his pole-axe, unconsciousness being practically instantaneous. As the animal collapses, it automatically releases a trap-door, which allows the carcase to fall to the floor below, where the bleeding takes place. The trap-door immediately swings back ready for the next comer, and the killing proceeds at the rate of about eight per minute. On the bleeding-floor the carcasses are hitched to running tackle by the hoofs and carried along the bar where men cut through the large arteries of the neck and let the blood flow; about two minutes is allowed for each carcase to drain. The next stage is the dressing-room, where a squad of men each do their part in cutting down, removing the tail, and so on; the skins and entrails are removed within a few minutes, and the sides are washed down. A stalwart workman with two blows of a cleaver cuts the backbone lengthwise, after which the sides are weighed and inspected. If no fault is found the sides are then taken to the chill-rooms, where a temperature of 34° to 35° Fahr. prevails. Wheel-travelling hooks are used for transporting the sides along the track-bars, and switches are so arranged that a side can travel from end to end of the system without having to be lifted off. The Government tag is affixed in the chill-room, and after hanging for forty-eight hours the sides are taken for transit to the refrigerator cars. From the time the operator strikes the blow that finishes the animal's existence until the carcase, in the shape of sides of beef, reaches the chill-room, about three-quarters

of an hour elapse. Export sides are always sewn up in white sheets, and great care is taken to ensure a constant temperature on board ship. The temperature maintained during the voyage is 30° to 32° Fahr., and it is usual to embed a self-registering thermometer in the cargo so as to check variations in temperature (*see* Vol. V.).

Meat Inspection in Berlin. As it is generally considered that the



PRIME HEAVY BUTCHERS' PIGS: CHICAGO

arrangement in connection with the meat industry in Berlin may be taken as a model to the rest of the world, it will be of interest to note briefly what is done there. The present slaughterhouse and markets were finished in 1881 at a cost of half a million pounds, and since that time constant improvements and additions have been made. A certain number of private booths are rented by butchers who slaughter at least forty head of cattle per week, but the booth system is not encouraged since it renders inspection more difficult, and the tendency is towards the open slaughter-hall. All animals coming into the abattoir must be brought either by railway or waggon and not tied up; they are not allowed to be driven through the streets, and thus the animals themselves arrive unfatigued and the public are not annoyed. The method of slaughtering in the case of cattle and pigs is by stunning and subsequently bleeding, while the sheep and calves are simply bled after being tied on a table. Only specially trained men are allowed to do such work. The floors and adjacent walls must be cleansed after each slaughtering. The architectural and mechanical arrangements of the abattoir have been dealt with in the second volume of this work, and we need not further refer to them here, but we may add a word with regard to the inspection. As

is the custom in most Continental places, the inspection begins when the animals arrive by rail and goes on while they are confined in the pens awaiting slaughter. Needless to say, this inspection is carried out by a staff of qualified veterinary surgeons whose duty it is to examine every carcase and every part of it, and not only to examine it but to indicate the result of the examination by placing a mark upon the carcase indicating in which of the four classes of meat recognising their system it belongs.

The Continental law lays down exactly the conditions which determine into which class of meat any given carcase or portion of it shall be placed, and recognises the following four grades :

(1) Healthy meat which may be sold without restriction.

(2) Meat which is of a quality inferior to the first but still free from disease.

(3) Meat which is partially or slightly affected with disease and which is allowed to be sold at the Freibank after it has been cooked.

(4) Meat condemned as unfit for human consumption.

Powers of Inspectors. The powers of the inspectors differ according to their seniority, the junior inspector being allowed only to decide which meat shall be placed in the first of the above groups. When he encounters a diseased carcase or one whose condition does not satisfy him, he affixes to it a label indicating that it has been primarily rejected, and in course of time this carcase undergoes a further examination at the hands of the senior inspectors, who either pass it or place it in whichever group they consider it ought to be.

The Freibank. Meat which is regarded as an inferior quality but not diseased (Group 2) is stamped in a special way which indicates it as being of that quality, and is sold raw at the Freibank only. Meat which has been stamped as slightly diseased (Group 3) is allowed to be sold for food at the Freibank only after methods of cooking in an apparatus which ensure that the meat is sterilised.*

Account is kept of all meat which is sold at the Freibank and its value is placed to the credit of the owner of the animal, there being deducted from the sum realised from its sale an amount sufficient to pay the charges of the slaughterhouse and all working expenses. This, of course, considerably lessens the loss which would otherwise fall upon the owner if the carcase were absolutely destroyed, as is done in this country, where in the absence of any insurance, the owner may lose the whole value of the carcase.

In the case of those carcasses which are condemned as unfit for food (Group 4) they are removed to a destructor and converted into various commercial products. As regards the inspection of pigs, it is precisely similar to that already described as being carried out in Sweden (*see* Chap. II., Vol. III.). This scrupulously careful inspection at the slaughterhouse does not, however, end the system, for, no sooner has the

* Compare the system described as in vogue at Gothenberg. *See* Vol. III.

meat been removed thence and placed on sale in the meat-purveyor's establishment than it is again liable to inspection at the hands of another group of inspectors whose business it is particularly to direct their attention to those carcasses which do not bear the official stamp or which may have been kept for such a period after being passed as sound at the slaughterhouse as might allow of commencing putrefaction.

Comment on the Berlin System. The amazing part of the whole thing is, that this complicated system of inspection which begins with the living animal when it reaches the slaughterhouse, and virtually never ends until the portion of it is sold to the purchaser, causes practically no friction and works without any trouble ; in fact, it is safe to say there is less annoyance than we have in our own country in connection with our very inadequate methods of inspection. The words of the Belfast deputation in their report to their city council may well be quoted here in this connection since they have a general bearing and value :

“ Yet the whole system works with the utmost smoothness producing even less friction and confusion than the easy-going laws in Great Britain and Ireland. The latter should be codified, made uniform and applied universally. We are well aware of what all this means in the way of opposition from ignorance and vested interests, but we honestly believe that the gain to the nation, physically, intellectually, and economically, would more than amply repay us for the outlay and the opposition encountered, and we trust that at no distant date a Bill may be introduced into Parliament which will enable us to take our place abreast of, instead of behind, all other European nations in the matter of systematic and efficient meat inspection. In the meantime as a municipality we should endeavour to lead public opinion and take early steps to enable us to stamp or otherwise specify meat which has been passed by our inspectors as fit for food. For that it should be possible for any trader to successfully object to his meat being stamped, as proof that the inspector has passed it, is to render the form of meat inspection of little value to the purchaser and to allow the individual to stand in the way of the common good.”

We entirely agree.

Paris. The following regulations relative to the Paris abattoirs are about the most complete of their kind in existence.

“ *Control of Abattoirs* (Regulations of the 28th of October, 1829 ; 25th March, 1830 ; 23rd October, 1854 ; Police Orders of the 29th August, 1879).

“ It is forbidden to slaughter cattle and to dress the carcasses in any other place than the abattoirs built and arranged for that purpose, which are under the supervision of the Prefecture of Police.

“ Pigs affected with measles must not leave the abattoir. Beasts dying during transport, killed suddenly through accident in the market, the railroads, the public roads, or at the cattle breeders', must be taken to the nearest abattoir. An inspector will examine them and decide whether the meat is to be sold or destroyed.

“ In all cases, the flesh of animals dying a natural death must be destroyed at the expense of the owner.

“ No beast can be slaughtered in a stable or yard, except in cases of extreme urgency, ascertained by the inspector.

“ Calves and lambs dying a natural death must be destroyed in the slaughterhouse itself, and not taken away from it on any pretext.

“ Beasts suspected of disease—and therefore placed under observation in the stables of the abattoir—must only be slaughtered in the presence of an inspector, who must examine the viscera.

“ Meat and offal must only be kept in the places appointed for that purpose. It is forbidden to withdraw them from inspection in any way whatever.

“ The meat of slaughtered animals is examined, and what is judged to be bad is confiscated.

“ In the case of protest, the flesh and intestines of the animal are sent to a special place and examined by an expert. If the intestines are wanting, the protest is null and void.

“ If no claim has been made at the end of twenty-four hours, the meat is destroyed at the cost of the owner.

“ The meat seized or deposited with the inspectors is at their disposal, and must not be taken away or destroyed without an order from them.

“ All attempts to deceive the buyer as to the quality of the commodities—as, for instance, by the blowing up of meat—are punishable by a fine.

“ *Inspection of Meat* (Police Regulations of the 13th October, 1879).

“ All fresh meat exceeding three kilogrammes weight in amount, and all salted or smoked meat more than five kilos in weight, must be inspected when it enters the city. For this purpose inspection officers are placed at the gates of St. Cloud, Ternes, Clichy, La Villette, Vincennes, Charenton, Italie, and Orléans.

“ If it is desired to bring meat into Paris after the regular hours by other gates than the above-mentioned, by railroad or by boat, it may be done on condition that the meat be taken, at the expense of the bringer, to the nearest abattoir or to the Central Halls, under the escort of a Custom House official, where it will receive the regular inspection.

“ Meat recognised as unfit for food is immediately seized and destroyed at the cost of the owner ; but the latter has the right to appeal to the Court if he thinks the seizure illegal.

“ If the owner of the condemned meat wishes to keep it for the manufacture of tallow, &c., he may obtain permission ; but in that case the meat must be specially treated in the presence of the inspector at the cost of the applicant. Numerous incisions are made in it ; it is sprinkled with powdered charcoal and spirits of turpentine or ammonia.

“ If the owner of the meat protests against the seizure and demands another examination, the meat is taken to the office of inspection in the Central Halls, and is again examined by one of the veterinary surgeons in the service of the Prefecture of Police, designated by the owner himself.

If the meat be confiscated, either wholly or in part, the cost of the examination must be borne by the owner.

“All meat—whether sold in slaughterhouses, markets or butchers’ shops—must be submitted to inspection. The same obligation is in force for the offal and the products of manufacture. This inspection must be made in every shop at least twice in the month.”

The inspectors of meat are also entrusted with the examination of poultry, game, and fish.

A large number of private slaughterhouses were built in the outskirts of the city in consequence of the vigorous measures enforced in Paris. These have been placed under the supervision of ten special inspectors since 1883. Their jurisdiction extends over the whole of the Department of the Seine.

Central Halls, Paris. In Paris, as in London, the wholesale traffic in provisions needing careful supervision is centred in one place, the Central Halls.

At present the market covers a space of 40,390 square metres (48,506 square yards), but it will shortly be enlarged.

There are ten pavilions connected by covered passages. They are arranged in two sections, one of four and another of six, separated by the wide Baltard Street. The pavilions and sections form a perfect square. Each pavilion is divided into a number of shops. Underground are storehouses and cellars.

The sections composed of four pavilions are at the left of Baltard Street. They are devoted to the sale of meat and offal, game, poultry, fruit, and vegetables.

The larger section of six pavilions is set apart for tubers, legumes, fish and shellfish, butter and cheese.

The exchange is near the market. The wholesale traffic is conducted by brokers or auctioneers. It commences in winter at 6 A.M., in summer at 5 A.M. and ends at 9 A.M. A bell then announces the retail sale.

The inspection of meat at the market is made in the following manner :

Each piece of meat is marked with a number, hung on a hook, and then examined by the inspectors. The good pieces are marked with a V (*à vendre*), the doubtful are taken to a special room, there to receive a careful examination. After careful anatomical and microscopical investigation, the inoffensive portions are returned, but all the damaged or diseased parts are condemned. The condemned meat is used for the food of the wild beasts in the Zoological Gardens, or else it is destroyed as before mentioned.

After the Central Market, the market of St. Germain, near the Church of St. Sulpice, is the largest place for the sale of general provisions. The market of Porte St. Martin is principally for the sale of poultry.

The display of merchandise is nowhere better understood than in Paris. Even the meat is garnished with flowers and foliage.*

* *Douglas' Encyclopædia.*

CHAPTER II

MEAT INSPECTION IN BRITISH CENTRES

IN order to form some accurate idea of the present state of meat inspection in Great Britain it is necessary to give a brief account of what is done in some of our typical large centres of the meat trade. Only in this way can the student of meat inspection realise the lack of uniformity in Great Britain in this matter and the difference of method in various places. The information in the following pages has been gathered for this purpose by the writer from the various meat inspectors themselves in the places referred to, and also from officials of the municipalities concerned and those engaged in the industry itself. It may be taken for granted that the several systems about to be described are typical of many others up and down the country.

Inspection Outside the Abattoir. The following account of the method of meat inspection (adopted in Edinburgh especially) as far as inspection is concerned *outside* the slaughterhouse is supplied by Mr. J. Henderson, M.R.C.V.S., one of the Edinburgh City veterinary meat inspectors, and applies to many cities. The facts supplied by him are as follows: "The inspection of butcher's meat and other food-stuffs is made under the Public Health (Scotland) Act, 1897, under section 43 of that Act. In addition, there are two other Acts which regulate meat inspection, one of which refers to the sale of horse-flesh, under which Act no recorded steps have yet been taken, and another Act referring to the sale of bull beef, which remains in abeyance.

"The staff of food inspectors in the City of Edinburgh consists of four members of the Royal College of Veterinary Surgeons, who report daily on their work to the M.O.H. of the city. One of these inspectors is primarily engaged in inspecting cows and cow-sheds; another is occupied in the inspection of shops and other food repositories, as well as railway stations, where food-stuffs—principally butcher's meat—can be examined in transit. The remaining two inspectors are mainly engaged at the public slaughterhouses each day from 6 A.M. to 6 P.M., the twelve hours being divided into three periods taken by them alternately. This leaves one inspector free for other work during the day, when his duty consists of additional inspection of railways, shops, &c.

Inspection of Sales and Retail Shops. "The live-stock sales are held in Edinburgh on Tuesdays, and on that day the duty of the two inspectors who are not engaged at the slaughterhouse is to inspect the fat stock at the point of debarkation, and at the sales themselves. The inspectors

on duty at the slaughterhouse on Tuesdays remain so until 10 P.M., and undertake no outside work on that day.

“Meat and food inspection other than that of the slaughterhouse (and with the exception of Tuesday in each week) is carried out by one inspector whose whole time is engaged in this work, and by another inspector part of whose time is devoted to it. Most of the inspector’s time is taken up with the inspection of retail shops, seeing that these preponderate in number very greatly over all other food repositories. The shops visited in this way include those of butchers, grocers, fish-mongers, and fruiterers. The attention of the inspector is directed, not only to the condition of the food exposed for sale, but also to the cleanliness, ventilation, and general sanitary conditions of the premises. All complaints, other than those with regard to the fitness of the food itself, are referred to the sanitary department.

“The butchers’ shops may be roughly divided into two classes : first, there are those in which frozen meat only is sold, and, secondly, those which expose for sale only, or mainly, home-fed carcasses. The first class of shops is owned chiefly by large companies, which endeavour to supply daily only so much meat as can be disposed of by sale on that day, and whatever happens to be unsold at the end of that day is converted into sausages for the following day.

Changes in Frozen Meat. “Frozen meat, when thawed out, tends to be discoloured very rapidly, this being one of the effects of refrigeration.

“The serous membranes, and especially those over the muscles of the diaphragm, very quickly become darker in colour. Although this be the case, a fresh section made with the knife may yet show that the meat is in sound condition. Frozen carcasses have the advantage, as a rule, of being very efficiently handled at the place of slaughter, where arrangements are made so that they can be cooled gradually at correct temperatures. This process enables them to withstand decomposition better than might be expected, considering the fact that the exposed surfaces are very moist during the process of thawing and for some considerable time afterwards, and the further fact that these moist surfaces favour the lodgment and the action of bacteria contained in the atmosphere and blown on to the carcasses by the wind. The home-fed carcasses, on the other hand, become dry on their surfaces while cooling and remain so, and thus retain their ‘bloom’ or healthy appearance in a manner which is impossible in the case of frozen meat. In summer, however, owing largely to the fact that at the existing slaughterhouse in this city there are no cooling-chambers where carcasses can be treated with the correct gradation of temperatures, it not infrequently happens that the animal heat fails to be sufficiently extracted, and, as the result, an acid decomposition sets in, notably at the deep joints such as the hip-joint and the shoulder-joint. This decomposition rapidly renders the carcase unfit for food.

Discolouration of Chilled Meat. “What is termed ‘chilled meat’ is also sold extensively. This is meat which is killed abroad and shipped

to this country, but which has been exposed only to the continuous temperature of freezing-point. As the external layers, at least, of this meat have been frozen, this also becomes discoloured like meat which has been completely frozen, but when chilled meat is thawed out the serum from it does not drip to nearly the same extent as happens in the case of frozen meat. The reason of this loss from dripping is that the muscle-fibres, as well as the lymphatic vessels and spaces, swell up and rupture during the process of freezing, and these ruptured tissues when thawed out cannot retain the serum within them.

“Of course, in the summer there is a greater chance of finding decomposing meat in shops than at any other season of the year, but inasmuch as most butchers’ shops have ice-safes for storage, there is much less meat so lost than would otherwise occur.

Rabbits and Game. “Of all the various kinds of meat-stuffs there is most risk from decomposition in the case of rabbits. The reason for this is, in the first place, that they are unbled, and, secondly, the time which elapses between the killing of the rabbit and the removal of the abdominal viscera varies extremely. It sometimes happens that rabbits remain in a snare or a trap for a good many hours before being removed, and such occurrences as this make them particularly liable to decompose afterwards. This same consideration applies in a still greater degree to hares, in which the viscera are allowed to remain within the body until the animal is sold by the purveyor. With regard to game generally, it is a remarkable fact that the flesh of all wild animals seems to resist the process of decomposition to a very much greater degree than that of animals in domestication. Further, the peculiar ‘high’ or ‘gamy’ flavour upon which epicures set such store is not always the result of the action of bacteria in the direction of decomposition.

When Decomposition Sets in. “In testing such meat for soundness or unsoundness, attention may be paid to the rigidity of the muscles or, as it is termed, *rigor-mortis*. This phenomenon is supposed to be due to coagulation of myosin as the result of the action of sarcolactic acid, and all sound edible muscle has an acid reaction which is hostile to the growth of bacteria, so that this reaction, which can be tested by litmus, may be suggested as a test for the soundness of game, since the decomposition of muscle which follows upon bacterial processes gives an alkaline reaction. It should be remembered, too, that fat, and especially the fat of the kidneys, as well as connective tissue, shows the process of decomposition earlier than does muscle.

“It not uncommonly happens that complaints are received from the public of foul odours emanating from butchers’ premises, and these are especially noticeable on the Monday mornings, and are usually traceable to decomposing bones and tallow contained in neglected cellars.

Inspection of Provision Stores. “As regards provision stores, all food-stuffs sold in them should come under the inspectors’ notice, and special attention should be paid to bacon, dry fish and tinned goods.

Rolls of bacon, which, as a rule, are most lightly cured, on account of the growing public distaste to an excess of salt, and are, therefore, designed for a ready sale, and also hams from which the bones have been cut out, should be frequently tested. This testing is done by means of a clean steel skewer thrust into the bacon or ham, any trace or taint present being rapidly discovered and recognised by the sense of smell.

Inspection of Tinned Foods. "Tinned meats and canned goods have attained a great popularity as food-stuffs, especially among the poorer classes of the community, to whom the high prices of fresh butcher's meat are a serious consideration. Despite the recent exposure and the adverse conditions under which these goods are sometimes prepared, this popularity remains but little diminished. Still it happens occasionally that such kinds of food become faulty and unfit for human food in at least two distinct ways. The first is from the failure to secure asepsis during the process of manufacture. This failure is detected in the provision store by the *bulging out of the ends of the tins* containing the food, which bulging is the result of the pressure of gas which has been generated inside the tin through the process of bacterial decomposition. It is a sign which is easily observed and constitutes a basis for seizing the goods ; but such cases, as a rule, are only isolated ones, and it is seldom that more than one or two are seen at any given time in any one shop. The second cause of unsoundness in these goods is a much more insidious matter. It has been demonstrated that when tinned meats are kept beyond a certain length of time a *certain amount of tin itself is absorbed by the meat juices* and thus becomes actually incorporated into the meat itself. It is said that the greater the amount of acid contained in the tinned goods the greater is the amount of tin so dissolved ; hence fruits and vegetable contents may absorb more tin than the juices of meat because of the greater acidity of the former.

" 'Some suggestions may be made in connection with this examination, and other occasions in which canned foods are examined by officers of sanitary authorities. Special attention should be directed, with the co-operation of the public analyst, to canned foods which there is reason to suspect to be of unusual age, *e.g.* more than one or two years, and in particular to such canned goods as those above referred to, in which the liability to act on tin is especially great. The presence in the contents of a sample can or tin in quantities approaching *two grains to the pound* may be taken to signify that the food has become potentially deleterious to health, and cause for further examination of other samples with a view to dealing with the consignment in accordance with the results obtained ' (L.G.B., Report of Inspection of Food, No. 7, 1908).

Inspecting Fish Shops. "We may next consider the methods adopted in the inspection of fish shops, the supply of which in Edinburgh is recognised as being fully equal to that of most cities. Newhaven, which is the importing centre, is only a short distance from the town, and the supplies of fish are brought daily. The unsold fish which arrives there which is not in the best condition, is that which has been reshipped from

other centres, but this constitutes probably only a small proportion of the total supply. Practically speaking, there is no other fish brought in, except that from trawlers. But little trouble is experienced in connection with the fish, except during a few summer months, at which period of the year stale and unsound fish can be recognised by their limpness, the cloudiness of the eye of the fish, and in advanced cases by their odour. The inspectors receive more complaints from citizens regarding the condition of fish shops than concerning any other provision centres. Foul odours are occasionally complained of, and investigation usually shows that these arise from structural and building defects in the shops themselves rather than in the condition of the fish exposed for sale. There is probably found to be a lack of proper ventilation, or wooden floors and wooden benches upon which the fish are exposed for sale. The slime from the fish and the fish-boxes permeates this wood and possibly drops into the cellar beneath, and this slime when in process of decomposition emits a continuous stench. Wood which has become so saturated can never be thoroughly cleansed by washing. In every case materials which are impervious to this absorption should be used both for flooring and for benches.

Inspection of Fruit Shops. "Taking next the inspection of fruit shops and stores, it must always be borne in mind that a certain amount of continuous rejection of decayed food must be kept up by the owner. It is, therefore, always possible that the inspector may find in some receptacle on the premises more or less of this rejected fruit which has been put on one side and is not intended to be exposed for sale. It is the inspector's duty to see that this process of selection and rejection is carried out, and that fruit so rejected is not sold to the public. Seizures of such fruit have frequently been made, and successful prosecutions are undertaken where manifestly decaying fruit has been exposed for sale at extremely low prices. In addition to such shops, it is well for the inspector to keep under observation such fruit repositories as jam and preserve factories, as it has been found necessary at times to seize large quantities of food at such places.

Inspecting Hawkers' Carts and Fried-fish Shops. "Numbers of hawkers' carts are more or less constantly upon the streets. They are licensed by the magistrates, and the goods which they expose for sale are continually changing in character. The owner may be one day selling fish and the next day fruit, the main consideration being the cheapness of the stock-in-trade. It is the duty of the inspector to inspect these vehicles wherever they are encountered.

"A large number of fried-fish shops are opened in the evenings only. The fish used mostly are the immature haddocks, &c., brought in by the trawlers and bought by the owner of the shop, as a rule, at a very low price.

"The fish themselves are generally sound, but it occasionally happens that the grease in which they and the chipped potatoes are cooked is by no means all that could be desired.

Inspecting Factories. "Large wholesale trade premises also come under the notice of the inspector. For example, the business of ham and bacon curing is usually combined with that of sausage-making. These premises are regularly inspected, along with all the shops which deal in food-stuffs in that particular district. Every part of these factories is inspected together with the stock-in-trade, particular attention being paid to the materials brought to the factory for the purpose of being made into sausages.

"As far as this city is concerned, there are few fish-curing establishments, but those which exist are regularly inspected.

Inspecting Cold Storage. "Turning our attention next to the cold-storage goods, we have already remarked upon some of the points in connection with them, and special attention is devoted to this subject in another part of this work. It may be stated here, however, that the inspectors find that continuous exposure to low temperatures leads to deterioration of meat. This deterioration is chiefly on account of moulds, and in the case of chickens at least is the result of degeneration in the muscular fibres themselves. It must be remembered—and it is rather an extraordinary fact—that certain moulds can grow readily at a temperature that is below freezing-point.

"Ostertag states that on meat in cold storage at a temperature of -4° Cent. moulds appear after three or four months.

"A manager of an extensive cold-storage plant states that, under ordinary conditions, no carcasses can escape the attack of moulds under exposure for six months to the temperature of -5° Cent. These moulds are mainly of two types, that represented by *phlebia merismoides* affecting patches and having a snow-white, closely set, flat appearance. The other type is most extensively represented by the *mucorini*. The latter exhibits growth in two forms: (1) the normal growth has a heavy appearance; (2) the other appear as a very dark brown or black spot or in patches. Both may be present in the same area but usually they are separate. This dark growth is usually called 'spot' in the meat trade (see Vol. V.). Large consignments of frozen carcasses have been refused acceptance by the consignee on account of the extensive presence of spot upon the carcasses, and have been a total loss to the underwriters. The writer has observed the presence of this condition upon pieces of flesh taken from the interior of blocks of frozen 'box' or boneless beef. Very little is known about the effect of these moulds upon the meat as regards the fitness or unfitness of the meat for use as human food.

Are Moulds Injurious? "Whether it is true or not that these moulds do not penetrate very deeply into the tissues when frozen, it is still a question whether such carcasses can be rightly described as unsound. A recent case between the Glasgow Corporation and a meat-purveyor of such goods bears upon this point.

"In that case the veterinary inspector for the Corporation of Glasgow had seized a quantity of imported meat exhibiting mould, with the additional allegation that the meat was decomposing. The magistrate's

decision was that the charge of unfitness for human food was not proven except in the case of one parcel. In this case the meat was imported from the Argentine Republic, but, instead of being frozen, it had been treated by the Lindley process of meat preservation, in which the carcass is sterilised for about an hour and then the sterilising material driven off and dry air turned on.

Inspection of Dead-meat Sales. "The inspectors also attend the dead-meat sales, which are almost entirely supplied with meat from the slaughterhouse. What does not come from that source is consigned by railway from distant towns, or by lorries and carts and vans from towns in the immediate neighbourhood. The inspector on duty at the slaughterhouse inspects these sales several times daily, the meat-sale market in Edinburgh being in close proximity to the slaughterhouse. The inspector whose work lies outside the slaughterhouse examines, as far as possible, all such consignments in transit. Most of this class of meat is brought by railroad, hence all the goods and parcels offices are visited several times daily. As a rule, such meat is perfectly sound and consists, to a large extent, of the more expensive cuts of meat which the small meat dealer in the country cannot dispose of profitably.

Inspection of Emergency-slaughtered Animals. "A very small proportion of it, however, is the result of emergency slaughter; and it is this meat which must be most carefully looked for and which furnishes the source of most of the meat which is seized, (*see* p. 850, Vol. III.). Emergency slaughter follows an accident or some disease in the animal in which the afflicted beast is 'killed to save its life,' as the owner sometimes phrases it. A considerable number of such carcasses are sent to the slaughterhouse to be dressed and inspected. They are brought in on carts, or if alive in floats, and a considerable number of seizures occur from these sources. If, however, they are dressed for human food before being sent for sale the law provides that if accompanied by a certificate of a veterinary inspector appointed for this purpose at the place of origin, this certificate stating that in his opinion the carcass is fit for human food, then in case of seizure by the city meat inspector the owner is absolved from prosecution, he having used 'reasonable care' to provide against consigning meat which was 'diseased, unsound and unfit' (Public Health (Scotland) Act, 1897, section 43).

"Seizures of carcasses which are diseased or unfit and which are unaccompanied by the certificate above-mentioned may be, and often are, followed by prosecution. Such prosecutions have had the effect of enormously reducing the numbers of uncertified carcasses consigned to Edinburgh nowadays.

"It is by no means easy to state what was the emergency which led to the slaughter of the animals from which such carcasses result. The internal organs are practically never sent along with them, and even if they were, sound organs might easily be substituted for them, and so might mislead instead of assist the inspector.

"It is, however, safe to mention tuberculosis, choking, broken bones,

septicæmias in sheep, and decomposition on account of too long an interval elapsing between bleeding and evisceration of the contents of the abdomen, as well as animals dying by disease or accident before the carcase was bled, as being common causes for their preparation for human food and subsequent shipment.

Investigating Public Complaints. "Not infrequently the routine of the meat inspector's work is interrupted by the investigation of complaints made by citizens. Usually a sample of the food-stuff complained of is brought to the inspector's office by the complainer. Sometimes the complaint is well founded, in which case the shop from which the food was purchased is thoroughly searched for any similar diseased or decomposing food-stuffs, and should such be found the complaint greatly assists in subsequent legal proceedings. But, on the contrary, it frequently transpires that the material complained of has been kept an unreasonable time in the house of the purchaser under most unfavourable conditions, and further, that the lodgment of the complaint has been preceded by a course of mutual recrimination between buyer and seller. Needless to say, the adjustment of such cases demands the exercise of a considerable amount of tact on the part of the meat inspector. Complaints are sometimes lodged anonymously. These are seldom found to be well grounded, and are usually the result of personal animosity. In this connection it may be stated that information regarding seizable food-stuffs is sometimes volunteered by persons whom the inspectors meet in their official capacity. This information is really valuable, and to such an extent is this the case that the existence of unsound food in any premises or in anybody's possession in this city is a matter of considerable risk to the owner.

Special Duty. "At intervals the inspectors visit shops at night, and they hold themselves ready for special duty at any hour at which they may be called. Those who have been longest in the service state that the conditions which now obtain with regard to the food-stuffs of the city exhibit an immense improvement upon those which they found before meat inspection was instituted and thoroughly organised."

This excellent account by Mr. Henderson of the duties of a meat inspector outside the abattoir may be taken as an example of what has to be done by any one holding such an appointment in any large city where the inspection is well organised.

LONDON CORPORATION MARKETS

"Markets have been in existence in the City of London for more than a thousand years, and the Corporation has for many centuries been the market authority. Ten centuries ago, Billingsgate was used for the sale of fish, and Smithfield Market was in existence in 1253. Henry III. covenanted by charter with the city of London not to grant permission to any one else to set up a market within a radius of seven miles from the city. Edward III., in the first year of his reign, by charter dated March

6, 1326, also granted, with the assent of Parliament, to the citizens of London exclusive market rights and privileges within seven miles from the city. These privileges were reconfirmed by Richard II., Charles I., and Charles II. In 1835 the judges of her Majesty Queen Victoria's Court declared that these charters had the same force as an Act of Parliament. The Corporation markets are as follows :

Billingsgate Market.

Foreign Cattle Market (Deptford).

Leadenhall Market.

London Central Markets (West Smithfield).

Metropolitan Cattle Market (Islington).

Smithfield Hay Market.

“ **Billingsgate** is the most ancient market belonging to the Corporation, although the first Act of Parliament relating to it was only passed in 1699 in the reign of William III. It was then made a free and open market for all sorts of fish whatsoever, and under this statute the dues to be taken at the market were to be annually set by the Court of Aldermen, but tolls and customs had been collected at the market as far back as the year 1400.

“ In 1796 an Act was passed authorising the sale of fish at Billingsgate by retail, and in 1846 a consolidating and amending Act was passed which enacted that on every day of the week, except Sunday, Billingsgate Market should be a free and open market for the wholesale and retail sale of all sorts of fish and in any quantity. The supplies of fish arrive both by land and water, the average weight received being about 400 tons per day. The tolls work out a little under $\frac{3}{4}d.$ per cwt., and the gross income is about £25,000 per annum.

“ **The London Central Markets** stand partly on the site of the old Smithfield Market and comprise :

London Central Meat Market.

London Central Poultry and Provision Market.

London Central General Market, comprising poultry and provision section, inland fish section, fruit, vegetable, and flower section.

“ Old Smithfield Market was founded in 1614 for the sale of live-stock, and the dead-meat market, called Newgate Market, was carried on in the neighbourhood of Newgate Street until the opening of the first portion of the new central markets in 1868. The Act establishing the meat, poultry, and provision market was passed in 1860, and authorised the utilisation of part of the site of old Smithfield Market and also conferred powers of purchasing additional land. A portion of the site was outside the city boundary, but by the same Act this part was declared to be within the city and to form a part of the ward of Farringdon Without.

“ Large sums of money were expended on the buildings and subsequent improvements, amounting in all to £1,075,000 on the meat market, £332,000 on the poultry and provision market and £533,000 on the general market ; the meat market was opened on December 1, 1868. During the first year of its existence, the meat delivered at the market

amounted to 127,981 tons. The deliveries for five recent years have been as follows :

1900	.	.	.	.	.	.	408,601 tons.
1901	.	.	.	.	.	.	414,638 „
1902	.	.	.	.	.	.	403,812 „
1903	.	.	.	.	.	.	414,322 „
1904	.	.	.	.	.	.	415,970 „

“The market is strictly wholesale except on Saturday afternoon, when the ‘people’s market’ is held, and is attended by thousands of the poorer classes from all parts of London, when a large retail trade is carried on.

“**The London Central General Market** is an extension of the original meat, poultry, and provision markets, and was originally intended for a fruit, vegetable, and flower market. In 1882, however, an Act was obtained for the conversion of the market into an inland fish market, and it was in due course opened as such. In 1886 further parliamentary powers were obtained to extend the area of the inland fish market and make it available for the sale of fruit, flowers, vegetables, and other marketable commodities as well, and the London Central Markets Act of 1886 authorised additional land to be acquired for the purpose.

“To meet the exigencies of the time, the market, originally intended as a fruit, vegetable, and flower market, was converted into an additional market for the sale of meat, poultry, and general provisions, and an inland fish market was built on a site immediately opposite. The fruit, vegetable, and flower section was erected by the corporation on land appropriated for the purpose lying to the north of Charterhouse Street, and was opened on June 13, 1892, upon the discontinuance of the old Farringdon Market.

“**The Metropolitan Cattle Market** was formerly held at Smithfield, but in 1855 was removed to its present site at Islington. Prior to its removal the market produced a working profit of about £6000 per annum, but since then it has yielded a large annual loss.

“The market occupies a site of about seventy-five acres, and was opened on June 13, 1855. It affords accommodation for 7190 beasts, 1920 calves, 35,946 sheep and 1440 pigs, but as many as 10,100 beasts and 38,500 sheep have been brought to the market in one day.

“The total sum expended by the Corporation in acquiring the site of and erecting the Metropolitan Cattle Market was £504,842. Smithfield Market having ceased to be a market for the sale of cattle and horses, and the Metropolitan Market at Islington having been substituted by the Corporation, the Metropolitan Market Act of 1857, section 15, enacted ‘that no new market for the sale of cattle or horses should be opened in the cities of London or Westminster or the Liberties thereof, or in the Borough of Southwark or at any place distant, less than seven miles in a straight line from St. Paul’s Cathedral.’

“**The Foreign Cattle Market** covers thirty acres, and occupies the site of the old Admiralty dockyard at Deptford. This market was started in 1869 with a view to the prevention of the introduction into Great

Britain of contagious diseases among animals. In this year an Act was passed, under which the Corporation of the City of London was made a local authority, with power to appoint inspectors and also to provide, erect and fit up wharves, lairs, sheds, markets, houses, and places of the landing, reception, sale and slaughter of foreign animals, and for this last-mentioned purpose the Corporation was appointed the exclusive Local Authority in and for the metropolis, subject to its providing and opening for public use a market before January 1, 1872. On that day the market provided by the Corporation at Deptford was duly opened.

“Every animal received is slaughtered within the market after inspection by officers of the Board of Agriculture, and diseased animals are at once consigned to the digester and reduced to an innocuous product. There are twelve lairages capable of accommodating 5000 cattle and 22,000 sheep. Trans-shipment of cattle, &c., from the large ocean steamers is carried on by means of two smaller vessels belonging to the Corporation, and the animals generally arrive in good condition, the loss in transit being only about four per thousand. There are sixty-six slaughterhouses attached to the market, and nearly two thousand people are employed in and about the market. Chill-rooms were erected in 1888 and extended in 1891, and have been further extended and are capable of holding a large quantity of beef.

“The total sum expended by the Corporation in acquiring the site and constructing the market has been £375,000.

“**Leadenhall Market** has existed from very early times, and was an ancient prescriptive market for the sale of meat, poultry, game, and provisions. In 1871 the Leadenhall Market Act abolished the then existing market, and empowered the Corporation to lay out and form new streets and construct a new market for the sale of ‘meat, fish, poultry, and other provisions’ on such part of the appropriated lands and the other lands authorised to be acquired as it might think proper.

“The new market was opened on December 15, 1881, and the total amount of capital raised for the rebuilding, together with the cost of the approaches and avenues, was £247,800.

“**The Smithfield Hay Market** is a very ancient market, having for some centuries been held at Smithfield in conjunction with the old market there for the sale of cattle, sheep, and horses. When the Metropolitan Market Act of 1851 was passed, which provided for the removal to another site of the then existing cattle market at Smithfield, no provision was made for the removal of the hay market, and it therefore still continues to be held at Smithfield in the open space adjoining the London Central Meat Markets.

“The Corporation of the City of London claims, and we think with justice, that, so far as its market rights are concerned, it has worked these for the public benefit, and has always met with promptness its responsibilities in providing increased market accommodation according as the increasing population made it requisite that greater provision should be made for the food-supplies, and the citizens of London may justly boast of its series of markets, which are unequalled throughout the world.

“The Corporation Markets are under the control and management of three committees, the Central Markets Committee, the Cattle Markets Committee, and the Billingsgate and Leadenhall Markets Committee, who act subject to the approval of the Court of Common Council. Previous to 1893 all the markets were managed by the Grand Markets Committee, but the system was too unwieldy. The Central Markets Committee has the management of all the London Central Markets and the Smithfield Hay Market; the Cattle Markets Committee has the management of the Metropolitan Cattle Market at Islington and the Foreign Cattle Market at Deptford; and the Billingsgate and Leadenhall Markets Committee has the management of Billingsgate and Leadenhall Markets. A statement as to the powers and duties of the above committees was laid before the Royal Commission on London Government in 1893, containing the following facts:

“The several committees consider all applications for space in the markets under their respective jurisdictions, but they are bound by the 18th standing order of the Court of Common Council (as amended on the 2nd February, 1893) to submit them for the approval of the Court, and in submitting the proposed lettings the committee has to furnish information as to the description of the property intended to be let, the term proposed, the rent, the amount of premium (if any) and the rent at which it was last let, also if under covenant for renewal as in the case of other corporation lettings. In addition to the ordinary monthly reports, annual reports are made by the various clerks and superintendents of the markets to the committees, who have the same printed and laid before the Court. In any case of infringement of market bylaws, it is the duty of the clerk and superintendent of the market in question to report the fact to the committee, who direct action to be taken in the matter as may be necessary.

“**The Central Markets Committee**, consisting of six aldermen and twenty-nine commoners, has the letting of all property in the various central markets, and has also the power to appoint the necessary officials (with the exception of the clerk and superintendent, who is appointed by the Court of Common Council) from the assistant clerk and cashier downwards, there being in all seventy-six market officials to whom salaries amounting to over £12,555 annually are paid. Some idea may be formed of the work devolving upon this Committee from the fact that there are 416 holdings in the various sections of the Central Markets.

“**The Cattle Markets Committee**, consisting of six aldermen and twenty-nine commoners, has the management of all matters relating to the Foreign Cattle Market at Deptford and the Metropolitan Cattle Market at Islington, and has similar powers and authorities to the Central Markets Committee. The Cattle Markets Committee is the Executive Committee to carry out the powers and authorities which by the second part of the Contagious Diseases (Animals) Act are conferred upon the mayor, aldermen and commons of the City of London—the local authority for the purposes of that part of the Act in and for the metropolis.

“The committee, besides appointing the other officials, also appoints the superintendent of the Foreign Cattle Market, but the Court of Common Council appoints the clerk and superintendent and the veterinary inspector of the Metropolitan Cattle Market. There are fifty-one officials employed at the Foreign Cattle Market, to whom salaries amounting to over £9920 are paid annually, and at the Metropolitan Cattle Market there are thirty-three officials employed, to whom salaries amounting to over £3308 are paid annually.

“There are 292 holdings under the superintendence and management of this Committee.

“**The Billingsgate and Leadenhall Markets Committee**, consisting of six aldermen and twenty-nine commoners, has the management of all matters relating to the Billingsgate and Leadenhall Markets, and is similarly constituted to the Central Markets Committee and the standing orders already referred to, with regard to letting property, apply to both these markets.

“This committee appoints all the officials of Billingsgate Market below the clerk and superintendent (who is appointed by the Court of Common Council), there being in all thirty-one officials, who receive an aggregate annual sum of over £2632 in salaries.

“Besides the clerk and superintendent of Leadenhall Market (who is appointed by the Court of Common Council) there are two officials appointed by the Committee; the annual salaries amount to over £514.

“There are 407 holdings under the superintendence and management of this committee.” *

Conditions of the London Markets. The following paragraphs are from the most recent report of the Cattle Markets Committee, and indicate the present conditions of the London markets :

“The following were the supplies at the respective markets, viz. :

“Metropolitan Cattle Market :

	1906. No. of animals.	1907. No. of animals.	1908. No. of animals.
Beasts . . .	58,085	57,534	56,062
Sheep . . .	459,043	387,522	330,216
Calves . . .	2,239	2,092	1,512
Pigs . . .	263	149	25
Other animals .	9,667	7,628	5,123
Total . . .	<u>529,297</u>	<u>454,925</u>	<u>392,938</u>

“Foreign Cattle Market :

	1906.	1907.	1908.
Beasts . . .	200,903	184,971	145,653
Sheep . . .	2,373	4,950	4,364
Total . . .	<u>203,276</u>	<u>189,921</u>	<u>150,017</u>

* *Douglas' Encyclopædia.*

"While the number of animals exposed for sale at the Metropolitan Cattle Market continues to show a marked decrease, the number of cattle and pigs consigned direct to the public slaughterhouses therein has been very largely increased, owing, in the first case, to the shortage at Deptford. As a consequence the wholesale traders have been induced to purchase in the country or at Islington, and to slaughter the animals there.

"With regard to pigs, the severe restrictions (owing to the prevalence of swine fever) placed on their movement, except for the purpose of slaughter, account for the merely nominal number exposed for sale in the market, while, on the other hand, the numbers consigned direct for slaughter show a very large increase.

"The provision of the public slaughterhouses at Islington has thus already assisted to meet an emergency, which, while in the present instance it may not long continue, may at any time again arise; moreover, apart from these considerations, the diminishing number of private—and the special facilities afforded in public—slaughterhouses will naturally assist in promoting the use of the latter.

The Cause of Decreased Supplies. "The great decrease in supplies to the Foreign Cattle Market from the United States of America is attributed to the local causes referred to in his report by the superintendent of that market, whilst the prohibition in December last of the importation of animals from the States of Pennsylvania, New Jersey, New York, Maryland, and Delaware, owing to outbreaks of foot and mouth disease, have occasioned further diminution during the present year. Vigorous steps have been taken in the States affected for stamping out the disease, and we confidently anticipate that the restrictions may, in the very near future, be relaxed, and the trade of the market from the United States of America to a large extent restored.

"The various buildings and the equipment of the market at Deptford require to be maintained without regard to the fluctuations in the trade, and it has become necessary to carry out somewhat extensive works in re-roofing and repairs to the landing-stages and jetties. These it is purposed to carry out under approved schedules of prices, but, owing to the fact that the actual extent of the work cannot be estimated until opened up and in progress, we are unable to follow the usual course of first presenting an estimate.

Metropolitan Cattle Market. "BEASTS. The decrease in the number of beasts I consider is partly due to the contracts of previous years having gone to traders outside London, and also that until the end of the year dealers found it rather difficult to obtain cattle and get a remunerative price for them.

"SHEEP. There was a considerable decrease in the number of sheep exposed for sale. At the beginning of the year sheep were dear, and their movement restricted by the Sheep Scab Order. During July and August they were not allowed to be moved without a licence, and, unfortunately, prices fell, consequently the numbers sent here did not increase.

MEAT INSPECTION IN BRITISH CENTRES

IIII

“ PIGS. The severe restriction placed on the movements of these animals is still in force and prevents them being consigned here for sale, as in the majority of counties they can be moved for slaughter only. This accounts for the increase in the number of pigs slaughtered at this market, as will be seen by the Veterinary Report.

“TOLLS AND DUES

	Numbers.			Money.					
	1906.	1907.	1908.	1906.			1907.		
				£	s.	d.	£	s.	d.
Beasts . .	58,085	57,534	56,062	1,452	2	6	1,438	7	0
Sheep . .	459,043	387,522	330,216	2,398	2	1	2,020	2	11
Calves . .	2,239	2,092	1,512	27	19	9	26	3	0
Pigs . .	263	149	25	1	7	7	0	15	7
Horses . .	8,226	6,219	3,650	224	13	0	172	19	6
Donkeys . .	1,441	1,409	1,473	18	0	3	17	12	3
Friday's market	—	—	—	1,704	6	6	1,740	0	0
	529,297	454,925	392,938	5,826	11	8	5,416	0	3

	1906.	1907.	1908.
English Milch Cows . .	2,350	2,135	2,011

“LAIRAGE

	Numbers.			Money.					
	1906.	1907.	1908.	1906.			1907.		
				£	s.	d.	£	s.	d.
Beasts . .	104,440	109,747	126,936	1305	10	0	1371	16	9
Sheep . .	296,165	245,538	224,282	754	17	9	627	8	6
Calves . .	2,050	1,157	3,367	25	12	6	14	9	3
Pigs . .	2,450	2,051	18,823	10	4	2	8	10	11
Horses . .	5,893	10,383	4,971	73	13	3	129	15	9
				£2169	17	8	2152	1	2
Hay consumed.	Trusses. 15,919	Trusses. 15,832½	Trusses. 15,113½	2491	6	0	2706	13	9
Straw „	6,987	7,818	7,903	524	0	6	586	7	0
				£2491	6	0	2706	13	9
Amount received for hay sold				1527	8	8	1703	14	8
Cost of same				£ 963	17	4	1002	19	1
Amount received for straw sold				524	0	6	586	7	0
Cost of same				319	14	11	364	16	1
				£204	5	7	221	10	11

" STATEMENT OF MONEYS RECEIVED AND PAID INTO THE CHAMBER
OF LONDON DURING THE PAST THREE YEARS

	1906.			1907.			1908.		
	£	s.	d.	£	s.	d.	£	s.	d.
Tolls and dues .	5,826	16	4	5,415	0	1	5,036	15	10
Lairage	5,169	13	11	5,414	1	2	5,158	7	0
Slaughterhouse rents, gas, and water .	346	1	5	942	17	2	761	14	10
Drovers' licences .	33	14	0	33	10	0	33	0	0
Cattle weighings .	65	11	10	75	11	7	75	7	2
Root-shed rents .	121	0	0	116	2	6	117	12	0
Sundries	7	12	0	8	0	0	—		
Meat refuse, bones, &c.	261	12	1	274	0	7	366	0	2
Slaughtering accom- modation . . .	402	5	5	640	1	10	2,922	13	0
Water-meter rent .	1	18	0	5	14	0	3	12	0
Slaughterhouse tolls .	82	8	7	—			—		
	12,318	13	7	12,924	18	11	14,475	2	0
Quarterly rents, gas, and water, collected by the Chamber- lain	6,991	17	6	5,572	15	8	4,985	7	5
	£19,310	11	1	£18,497	14	7	£19,460	9	5

Foreign Cattle Market, Deptford. "The returns show a decrease of 39,318 cattle and 586 sheep, as compared with 1907.

"The decrease is to be accounted for in various ways, viz. :

'The large increased importation of frozen and chilled meat from Argentina.

"Shortage of cattle in the United States of America.

"Increased price of live cattle in the United States of America.

"Increase in the consumption of meat in the United States of America.

"Decrease in the number of ranch cattle from North-west States of Canada.

"I find there has been a corresponding decrease in the number of animals landed at the outports during the past year.

"The trade began to increase in November last, but in December foot-and-mouth disease appeared in various States in America, and the Board of Agriculture prohibited the landing of live animals from the ports of Philadelphia, New York, and Baltimore ; this had the effect of reducing supplies to this market by nearly 2000 head of cattle weekly.

"The prohibition still continues.

“The transhipment service has been carried out during the year without accident; the number of animals transhipped show a decrease of 33,144 cattle and 1049 sheep, as compared with last year.

“Number of animals landed at the market during the years 1906, 1907, and 1908, with the amount received for wharfage, lairage, market dues, and charges :

Description of animals.	1906.			1907.			1908.		
	Number.	Rate.	£ s.	Number.	Rate.	£ s. d.	Number.	Rate.	£ s. d.
Beasts .	200,903	4s.	40,180 12	184,971	4s.	36,994 4 0	145,653	4s.	29,130 12 0
Calves .	—	2s.	—	—	2s.	—	—	2s.	—
Sheep .	2,373	8d.	79 2	4,950	8d.	165 0 0	4,364	8d.	145 9 4
Pigs .	—	1s.	—	—	1s.	—	—	1s.	—
Total .	203,276		40,259 14	189,921		37,159 4 0	150,017		29,276 1 4

Offal Scalding-house. “Non-edible offal is scalded before it is allowed to leave the market. The quantity scalded and the amount received are as follows :

Description.	1906.			1907.			1908.		
	Number.	Rate.	£ s. d.	Number.	Rate.	£ s. d.	Number.	Rate.	£ s. d.
Offal .	48,500	1s. per 100	24 5 0	51,700	1s. per 100	25 17 0	50,600	1s. per 100	25 6 0

Steam-vessels. “The following steamers have discharged animals at the market during the year :

	1906.	1907.	1908.
On week-days . .	393 ..	379 ..	290
On Sundays . .	39 ..	42 ..	23
Total . .	432 ..	421 ..	313

Transhipment of Cattle. “The Corporation of the City of London own three paddle steamers, which are used exclusively in the transhipment of cattle which arrive in the Thames in the large Atlantic liners; the vessels are specially fitted for the work. The *Taurus* carries 650 cattle, the *Claud Hamilton* 550, and the *Galway* 600.

“They take cattle off in the River Thames between Deptford and Thames Haven, and in the various docks in the Port of London.

“During the year 1908 the steamers made the following journeys :

	Sundays.	Week days.
<i>Taurus</i>	4	81
<i>Claud Hamilton</i>	1	32
<i>Galway</i>	10	92
	—	—
	15	205

“The number of animals carried and the amount received for the service during three years is as follows :

1906.				1907.				1908.			
Beasts.	Sheep.	Rate.	£ s. d.	Beasts.	Sheep.	Rate.	£ s. d.	Beasts.	Sheep.	Rate.	£ s.
135,929	—	1/6	10,194 13 6	123,294	—	1/6	9247 1 0	90,150	—	1/6	6761 5
—	1174	4d.	19 11 4	—	1049	4d.	17 9 8	—	—	4d.	—
135,929	1174		10,214 4 10	123,294	1049		9264 10 8	90,150	—		6761 5

Chill-rooms. “Chill-rooms were constructed to chill 450 sides of beef, and were opened for use in August 1889.

“Additional rooms were provided to chill 350 sides, and were opened for use in June 1891.

“Further accommodation was provided to chill 1600 sides, and opened for use in April 1897.

“Since then accommodation has been provided to chill 2000 sides, and was opened for use in March 1903.

“From the opening of the chill-rooms in 1889 to the end of the year 1908, 2,256,552 sides of beef and 5483 carcases of mutton have been chilled.

—	1906.			1907.			1908.		
	Number.	Rate.	£ s. d.	Number.	Rate.	£ s. d.	Number.	Rate.	£ s. d.
Sides of beef, first day .	219,474	9d.	8230 5 6	191,269	9d.	7172 11 9	132,368	9d.	4963 16 0
Do., second day	44,516	6d.	1112 18 0	34,238	6d.	855 19 0	27,161	6d.	679 0 6
Carcases of mutton, first day .	—	4d.	—	430	4d.	7 3 4	—	4d.	—
Do., second day	—	3d.	—	440	3d.	5 10 0	—	3d.	—
Total .			9343 3 6			8041 4 1			5642 16 6

“The commencement of the cattle trade from the United States of America to Deptford Market was in 1879. The following figures show the number landed each year, from that year to the year 1908 inclusive :

Year.	Beasts.	Calves.	Sheep.	Pigs.
1879 . .	28,653 ..	— ..	8,964 ..	510
1880 . .	62,512 ..	— ..	21,428 ..	470
1881 . .	45,610 ..	— ..	15,756 ..	114
1882 . .	15,925 ..	— ..	8,179 ..	—
1883 . .	48,957 ..	— ..	25,708 —	—
1884 . .	50,209 ..	— ..	10,546 ..	—
1885 . .	49,263 ..	— ..	8,446 ..	—
1886 . .	52,473 ..	— ..	1,416 ..	—
1887 . .	33,435 ..	— ..	— ..	—
1888 . .	52,700 ..	— ..	483 ..	—
1889 . .	99,842 ..	— ..	4,442 ..	—
1890 . .	157,631 ..	— ..	963 ..	—
1891 . .	124,983 ..	— ..	4,652 ..	—
1892 . .	139,799 ..	— ..	— ..	—
1893 . .	91,024 ..	— ..	— ..	—
1894 . .	148,816 ..	— ..	21,451 ..	—
1895 . .	100,492 ..	6 ..	34,483 ..	—
1896 . .	139,538 ..	— ..	18,992 ..	—
1897 . .	144,679 ..	— ..	7,897 ..	—
1898 . .	133,422 ..	— ..	4,228 ..	408
1899 . .	95,144 ..	— ..	3,417 ..	—
1900 . .	115,765 ..	— ..	3,544 ..	—
1901 . .	135,047 ..	— ..	41,549 ..	—
1902 . .	110,869 ..	— ..	41,542 ..	—
1903 . .	115,240 ..	— ..	9,225 ..	—
1904 . .	135,391 ..	— ..	30,188 ..	—
1905 . .	145,210 ..	— ..	1,819 ..	—
1906 . .	139,831 ..	— ..	— ..	—
1907 . .	127,550 ..	— ..	— ..	—
1908 . .	97,639 ..	— ..	— ..	—
Total . .	<u>2,937,649</u> ..	<u>6</u> ..	<u>329,318</u> ..	<u>1,502</u>

“The following figures show the number of animals landed from Canada in 1893 to the year 1908 inclusive :

1116 THE MEAT INDUSTRY AND MEAT INSPECTION

Year.	Beasts.	Calves.	Sheep.	Pigs.
1893 . .	23,893	.. — ..	276	.. —
1894 . .	21,020	.. — ..	4,745	.. —
1895 . .	23,208	.. — ..	9,722	.. —
1896 . .	24,809	.. — ..	39,600	.. —
1897 . .	29,365	.. — ..	31,056	.. —
1898 . .	24,802	.. — ..	18,078	.. —
1899 . .	12,673	.. — ..	22,435	.. —
1900 . .	23,835	.. — ..	10,410	.. —
1901 . .	19,834	.. — ..	26,628	.. —
1902 . .	25,604	.. — ..	30,490	.. —
1903 . .	47,812	.. — ..	46,012	.. —
1904 . .	41,968	.. — ..	32,987	.. —
1905 . .	51,977	.. — ..	12,675	.. —
1906 . .	61,072	.. — ..	2,373	.. —
1907 . .	57,421	.. — ..	4,950	.. —
1908 . .	48,014	.. — ..	4,364	.. —
Total .	<u>537,307</u>	.. — ..	<u>296,801</u>	.. —

“The trade with the Argentine Republic commenced in 1889 and closed in April 1900; it was re-opened in February 1903 and closed again in June 1903. In consequence of foot-and-mouth disease appearing in that country on both occasions, the English Board of Agriculture prohibited the importation. The following are the numbers of animals landed from 1889 to 1903 :

Year.	Beasts.	Calves.	Sheep.	Pigs.
1889 . .	19	.. — ..	—	.. —
1890 . .	22	.. — ..	3,075	.. —
1891 . .	484	.. — ..	1,471	.. —
1892 . .	99	.. — ..	976	.. —
1893 . .	2,131	.. — ..	10,226	.. —
1894 . .	4,971	.. — ..	36,564	.. —
1895 . .	25,528	.. 4 ..	193,743	.. 2
1896 . .	46,258	.. — ..	226,724	.. —
1897 . .	49,584	.. — ..	248,037	.. —
1898 . .	66,769	.. — ..	324,680	.. —
1899 . .	59,345	.. — ..	268,161	.. —
1900 . .	32,079	.. — ..	149,573	.. —
1901 . .	—	.. — ..	—	.. —
1902 . .	—	.. — ..	—	.. —
1903 . .	19,643	.. 3 ..	65,493	.. —
Total .	<u>306,932</u>	.. 7 ..	<u>1,528,723</u>	.. 2

MEAT INSPECTION IN BRITISH CENTRES

1117

“The following is a statement of the number of animals landed at the market during the years 1906, 1907, and 1908, and the ports from which they came :

Port.	Beasts.	Calves.	1906.	Sheep.	Pigs.
New York . .	51,583	—	..	—	..
Boston . .	33,233	—	..	—	..
Baltimore . .	9,467	—	..	—	..
Newport News .	5,076	—	..	—	..
Portland, Maine .	11,147	—	..	—	..
Philadelphia .	28,785	—	..	—	..
New Orleans .	237	—	..	—	..
Montreal . .	50,806	—	..	2,068	..
St. John . .	10,266	—	..	305	..
Norfolk . .	303	—	..	—	..
Halifax . .	—	—	..	—	..
Total . .	200,903	—		2,373	—

Port.	Beasts.	Calves.	1907.	Sheep.	Pigs.
New York . .	43,318	—	..	—	..
Boston . .	35,089	—	..	—	..
Baltimore . .	7,316	—	..	—	..
Newport News .	2,925	—	..	—	..
Portland, Maine .	9,141	—	..	—	..
Philadelphia .	29,184	—	..	—	..
New Orleans .	577	—	..	—	..
Montreal . .	47,357	—	..	4,950	..
St. John . .	10,064	—	..	—	..
Norfolk . .	—	—	..	—	..
Halifax . .	—	—	..	—	..
Total . .	184,971	—		4,950	—

Port.	Beasts.	Calves.	1908.	Sheep.	Pigs.
New York . .	33,628	—	..	—	..
Boston . .	30,148	—	..	—	..
Baltimore . .	6,965	—	..	—	..
Newport News .	—	—	..	—	..
Portland, Maine .	7,389	—	..	—	..
Philadelphia .	18,884	—	..	—	..
New Orleans .	—	—	..	—	..
Montreal . .	39,397	—	..	2,641	..
St. John . .	8,617	—	..	1,723	..
Norfolk . .	—	—	..	—	..
Halifax . .	625	—	..	—	..
Total . .	145,653	—		4,364	—

Report of Veterinary Inspector, Metropolitan Cattle Market, 1908.

"No case of scheduled contagious disease occurred among animals exposed for sale during the year. Swine fever, unfortunately, is still prevalent throughout the country, but owing to the restrictions placed upon the movement of swine by the Board of Agriculture, is now being held in check. I have only had to condemn seven pigs on account of this disease out of a total of 60,437 slaughtered.

"The number of animals slaughtered during 1908 was as follows :

Cattle.	Sheep.	Calves.	Pigs.	Total.
32,551 ..	69,028 ..	9,770 ..	60,437 =	171,786

"As compared with 1907 there was a decrease of 4996 in the number of animals killed, principally due to the shortage of sheep. There was however, an increase of cattle, namely, 10,248, and of pigs 25,372. Decrease of sheep partly accounted for by Board of Agriculture Order *re* 'Sheep Scab.'

"There were condemned as unfit for human food the following :

Whole carcasses.		Affected with localised disease and partially condemned.	
Cows . . .	673 ..	Cows . . .	216
Heifers . . .	21 ..	Bulls . . .	2
Bulls . . .	3 ..	Sheep . . .	1
Oxen . . .	4 ..		
Calves . . .	3 ..		
Sheep . . .	45 ..		
Pigs . . .	211 ..		
	<hr/> 960 ..		<hr/> 219
Total . . .			<hr/> <u>1179</u>

"Summary of diseases :

Tuberculosis . . .	684 ..	Swine fever . . .	7
Dropsy . . .	309 ..	Injured . . .	5
Emaciation . . .	95 ..	Jaundice . . .	3
Actinomycosis . . .	36 ..	Pyæmia. . . .	2
Hydatid disease . . .	13 ..	Pleurisy . . .	1
Smothered . . .	11 ..	Pneumonia . . .	2
Inflammation . . .	10 ..	Peritonitis . . .	1

"Compared with 1907 there is an increase of 107 in the number of whole carcasses, and twenty-eight in those partially condemned.

"The whole of the foregoing were surrendered by the trade after being condemned.

"Eighty were the carcasses of animals consigned in an apparently diseased condition to salesmen at this market, and which, during my inspection of the lairs, I caused to be slaughtered, and the carcasses destroyed as unfit for human food.

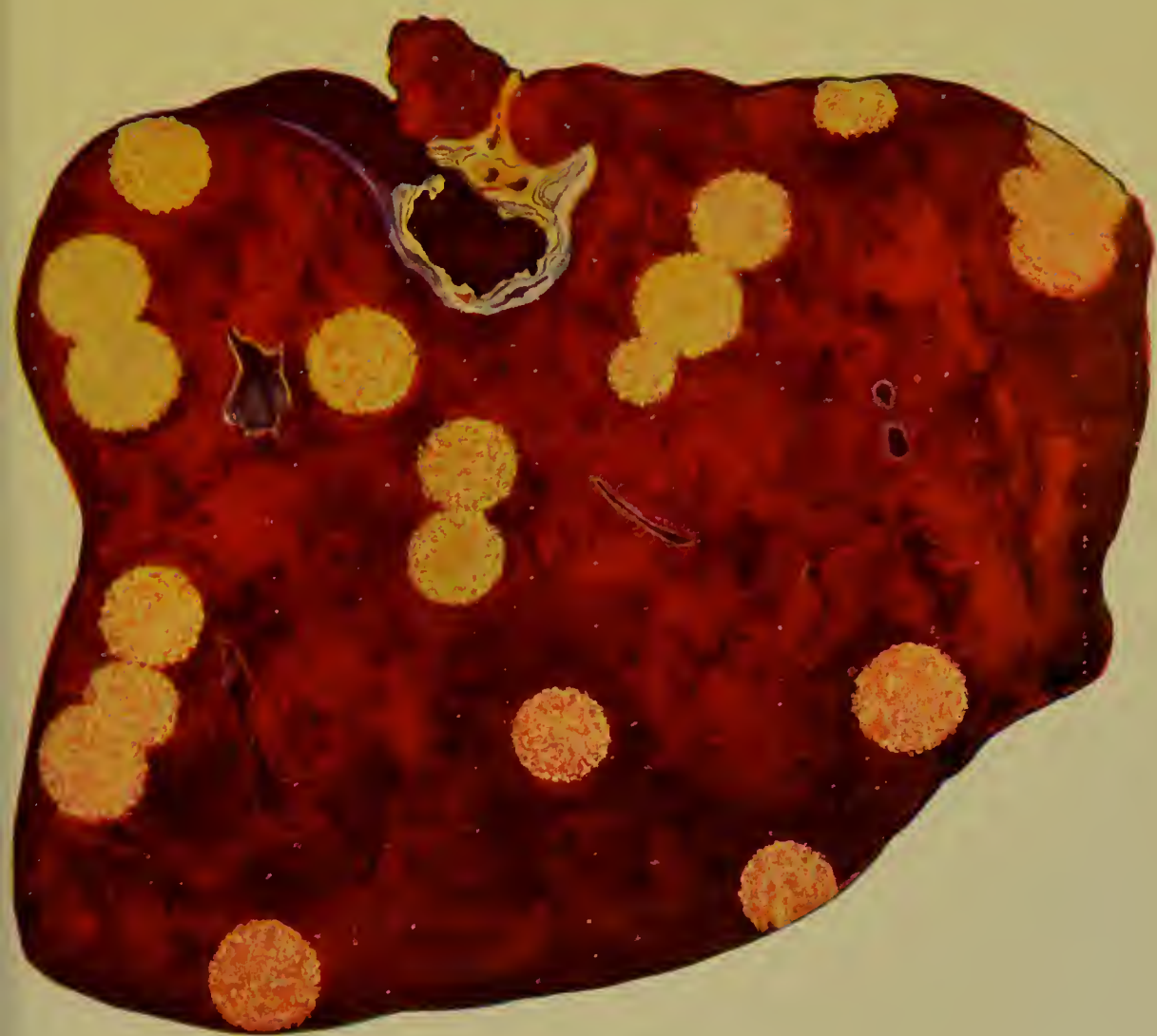
"VETERINARY INSPECTOR'S OFFICE,

"METROPOLITAN CATTLE MARKET,

"17th February, 1909."

BACTERIAL NECROSIS OF LIVER (BOVINE)

A cross-section showing the natural size and number of necrotic areas. The colour of the liver tissue varies, and the necrotic areas may be grey rather than that of the yellowish colour depicted.



BIRKENHEAD

No account of the meat industry in this country would be adequate which did not include in some detail the work done in Birkenhead, which looms so largely in the eyes of all who turn their attention to the subject. Dr. R. Sydney Marsden, M.O.H., has kindly furnished the details of the following paragraphs relating to his area, and to him we are much indebted. He has been good enough to add a few remarks on the meat-supply in general.

Notes relating to Meat-supply. "Forty per cent. of the meat in this country comes from abroad. The Argentine are making experiments for placing meat on the British market as nearly as possible resembling fresh-killed meat ; this applies to beef and mutton, not lamb.

"The average wholesale prices for the last two years, for first quality are as follows :

" Average wholesale prices for last two years, for first quality

	s.	d.	
British beef	53	8	per cwt.
Port-killed American	51	4	„
Argentine frozen	30	0	„
Argentine chilled	33	0	„
U.S.A. chilled	44	0	„

"In July 1908, 6s. per cwt. may be added to these various classes.

" Mutton, wholesale prices

	s.	d.	
British.	73	0	per cwt.
Argentine frozen	35	0	„
Australian frozen	32	0	„
New Zealand frozen	40	0	„

"Mutton has fluctuated very much in price, but on the average no rise in this class of meat has taken place.

The high price of butcher meat is caused by several factors, especially by the growing demand for flesh-foods, the increase of population in the producing countries, the great drought in Australia which reduced enormously the numbers of live-stock, and other causes.

"In Queensland two-thirds of the cattle died in one drought period ; in 1891 there were 6,000,000 head, in 1902 there were only 2,000,000, they are now estimated at 4,000,000. In the United States of America in 1907 there were 72,000,000, but scarcity of corn and a financial disturbance operated against the fattening of stock. South American Republics have large stocks, and these are being drawn upon to make up the shortage for the United States of America. The deficiency of overseas supply for the first six months of 1908, as compared with 1907, was 61,000 head of cattle. Twice as much foreign meat is now consumed in Great Britain as was the case twenty years ago. The average standard

of living during this period among the masses has undoubtedly risen. Japan and other Eastern nations are also using more meat.

Prices of Meat. "A bullock of average weight, say, 10 cwt., at a cost of, say, 37s. per cwt., live-weight, will have lost about 460 lb. after dressing the carcase. To this must be added the price of the tallow, hide, internal organs, and offal. A fall in the price of hides or sheepskins will increase the cost of the carcase. Offal should realise $\frac{3}{4}d.$ per lb. of the *carcase* weight, which reduces the cost proportionately. In retailing to the public there is loss in weight from bone and trimmed-off portions, by decomposition, and in selling parts which, owing to weather conditions, may not be in demand."

BOARD OF AGRICULTURE RETURNS OF ANIMALS LANDED AT THE PORT OF LIVERPOOL, *i.e.* BIRKENHEAD AND WALLASEY. KNOWN IN THE TRADE AS BIRKENHEAD MEAT

Ten years, 1898-1907

Year.	Cattle.	Sheep.	Source of origin.	Cattle.	Sheep.	Remarks.
1898	255,261	281,788	Canada U.S.A. Argentine Iceland	43,794 188,667 22,800 —	12,609 125,478 105,246 28,086	Many of these so-called Canadian are really U.S.A. per Canadian ports.
1899	248,058	274,376	Canada U.S.A. Argentine Iceland	39,419 183,572 25,067 —	17,885 108,550 109,074 22,650	
1900	224,661	195,885	Canada U.S.A. Argentine Iceland	29,471 187,735 7,455 —	13,389 125,124 33,155 24,217	
1901	243,859	249,789	Canada U.S.A. Argentine Iceland	20,342 223,517 — —	10,255 224,102 — 15,432	
1902	224,049	195,635	Canada U.S.A. Argentine Iceland	31,311 192,738 — —	10,117 180,575 — 4,973	

BOARD OF AGRICULTURE RETURNS OF ANIMALS LANDED AT THE PORT OF LIVERPOOL, *i.e.* BIRKENHEAD AND WALLASEY (*continued*)

Year.	Cattle.	Sheep.	Source of origin.	Cattle.	Sheep.	Remarks.
1903	257,074	199,472	Canada U.S.A. Argentine Iceland	95,612 153,841 7,621 —	20,366 151,996 15,311 11,799	Many of these so-called Canadian are really U.S.A. per Canadian ports.
1904	279,037	275,583	Canada U.S.A. Argentine Iceland	59,086 219,951 — —	23,036 242,946 — 9,601	
1905	276,545	159,961	Canada U.S.A. Argentine Iceland	57,738 218,807 — —	11,496 143,716 — 4,749	
1906	270,699	94,890	Canada U.S.A. Argentine Iceland	44,957 225,742 — —	7,373 82,638 — 4,879	
1907	213,953	97,622	Canada U.S.A. Argentine Iceland	22,624 191,329 — —	6,506 88,584 — 2,532	

Meat inspection here is carried out by a specially qualified inspector who devotes the whole of his time to the work. There is only one private slaughterhouse, all the killing being done at the public abattoirs or at Woodside, and inspection is therefore comparatively easy. The average amount of meat seized and condemned by the authorities for the last ten years is 206,977 lb. per annum, of which more than one-third would consist of offal. The reasons for seizure are very varied, including tuberculosis, gangrene, bruising, strangulation on board ship in transit, fever, Texas fever, abscess of liver and severe jaundice, and inflammation due to various causes.



EXTERIOR VIEW OF BIRMINGHAM PUBLIC ABATTOIR

CHAPTER III

MEAT INSPECTION IN BRITISH CENTRES

(CONTINUED)

BIRMINGHAM, LIVERPOOL, MANCHESTER, SALFORD, OLDHAM, CREWE,
NEWCASTLE-ON-TYNE, BRADFORD, AND SHEFFIELD

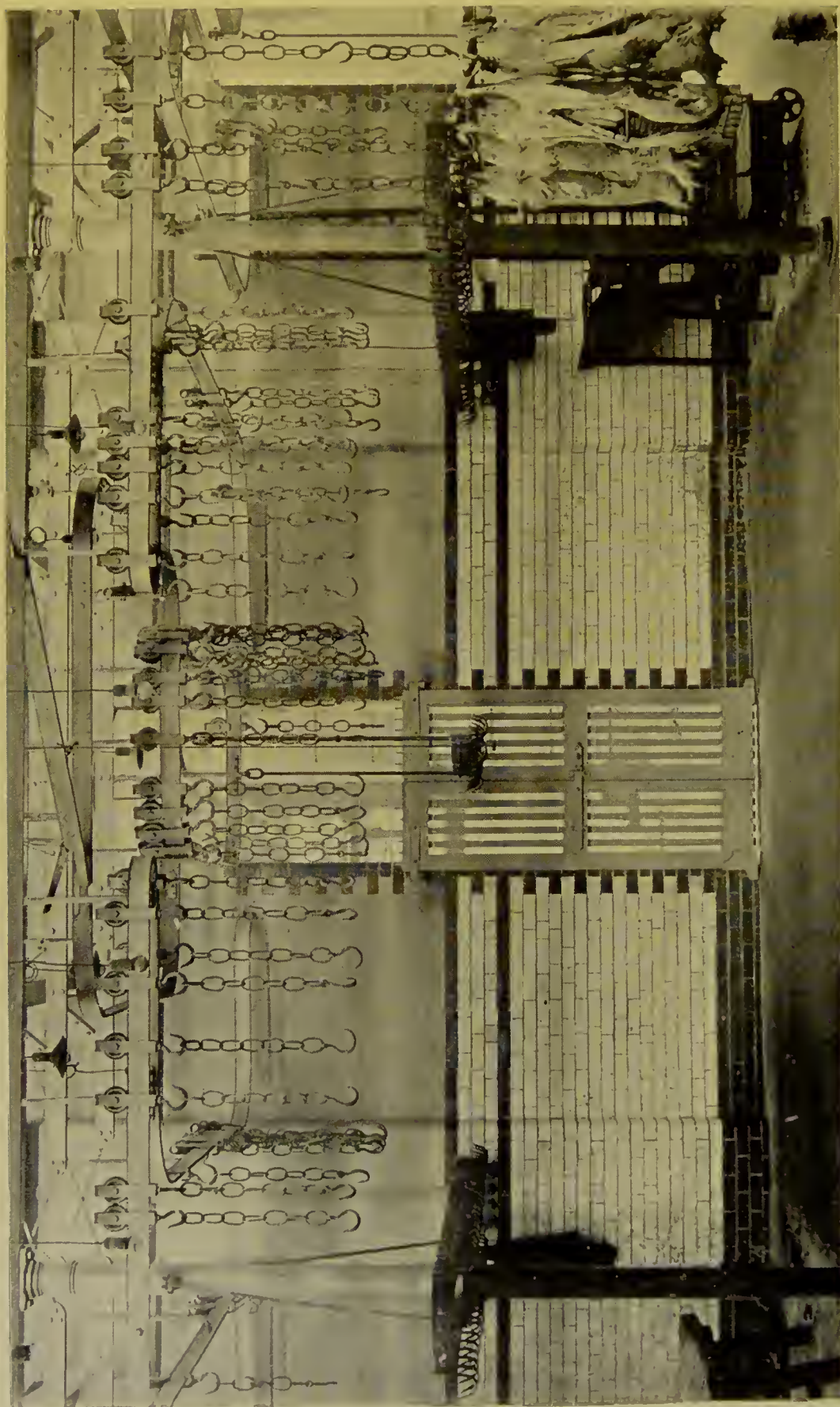
BIRMINGHAM

WE are indebted to Mr. Malcolm, Chief Veterinary Inspector for the City of Birmingham, for the following information as to the system adopted in food inspection in that city. Despite the fact that Birmingham has so great a population, the whole of the inspection of food-stuffs—meat and otherwise—in the city is carried out by three municipal inspectors. At first sight and without a first-hand knowledge of the actual condition of affairs one would be apt to think that such a staff would be found absolutely insufficient.

As a matter of fact, however, it is questionable if any large centres of the meat trade are more efficiently managed, or managed to the greater satisfaction of those concerned and safety of the public, than is the case here. The excellent result obtained is due in a great measure to the splendid spirit which exists between the officials in the slaughterhouse, the meat-purveyors themselves, and the M.O.H., all of whom seem to work together to the utmost of their ability in a most harmonious manner. A great deal of the credit of this state of affairs belongs to the Birmingham and District Butchers' Trade Association, which is in the hands of thoroughly practical men and which aims at maintaining the conduct of the trade upon a very high level of integrity and which admits only to its membership traders of excellent standing. Further, the class of cattle which provide the meat-supply of the city is an extremely good one, comparing most favourably with that found in other places. The work of inspection is still more minimised by the fact that the cattle markets in the city are not of very great magnitude, most of the cattle being purchased in the surrounding districts and counties direct from the farmers or at country sales.

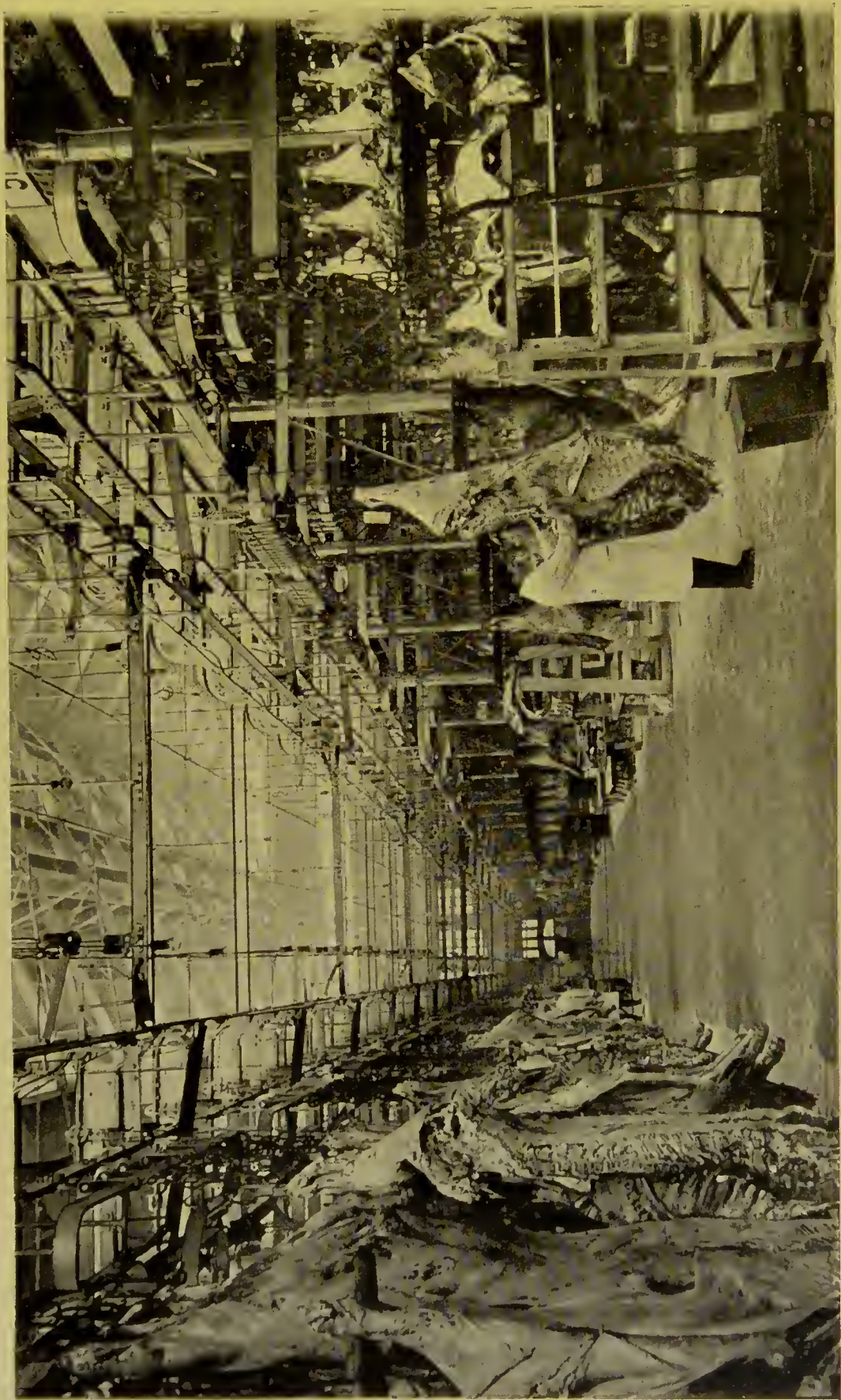
From thence they are consigned directly either to the municipal slaughterhouse or to the private slaughterhouses owned by the respective butchers in the city. Birmingham is, in fact, one of those few cities in which the private slaughterhouse thoroughly justifies its existence on account of the excellent way in which it is managed.

The Municipal Slaughterhouse. The municipal slaughterhouse is a splendid building, built about thirteen years ago with all the latest and



BIRMINGHAM PUBLIC ABATTOIR

Showing the overhead tracking and suspending chains with roller hooks. The construction of the building is also shown



BIRMINGHAM PUBLIC ABATTOIR : MEAT-MARKET

modern improvements, very much in accordance with what one usually sees in Germany. It is provided with a commodious lairage as well as with extensive cold-storage accommodation. The slaughtering is done upon the booth system, each butcher occupying a booth of his own for which he pays an annual charge to the corporation, and the method of slaughter adopted is, as usual, the pole-axe. Perhaps the most striking feature here is the fact that the meat markets, both wholesale and retail, are under one and the same roof as the slaughterhouses; and, as a matter of fact, the carcase, directly it is dressed, is run on the overhead railway immediately from the slaughtering booth into the meat market, where it is immediately upon sale. This is a very important arrangement in connection with the efficiency of the meat inspection, because it follows from it that any meat purveyor taking a carcase out of his booth into the adjoining market (which is only a matter of a yard or two) must take every precaution to see that that carcase is fit for human consumption without any loss of time.

The result of this is that the butcher is constantly requiring the services of the inspector in order to obtain his opinion upon any doubtful carcase, in order that he may be thereby protected. This means that the purveyors themselves take every opportunity of drawing the attention of the inspector to the slaughtered carcasses, and the system seems to work uncommonly well.

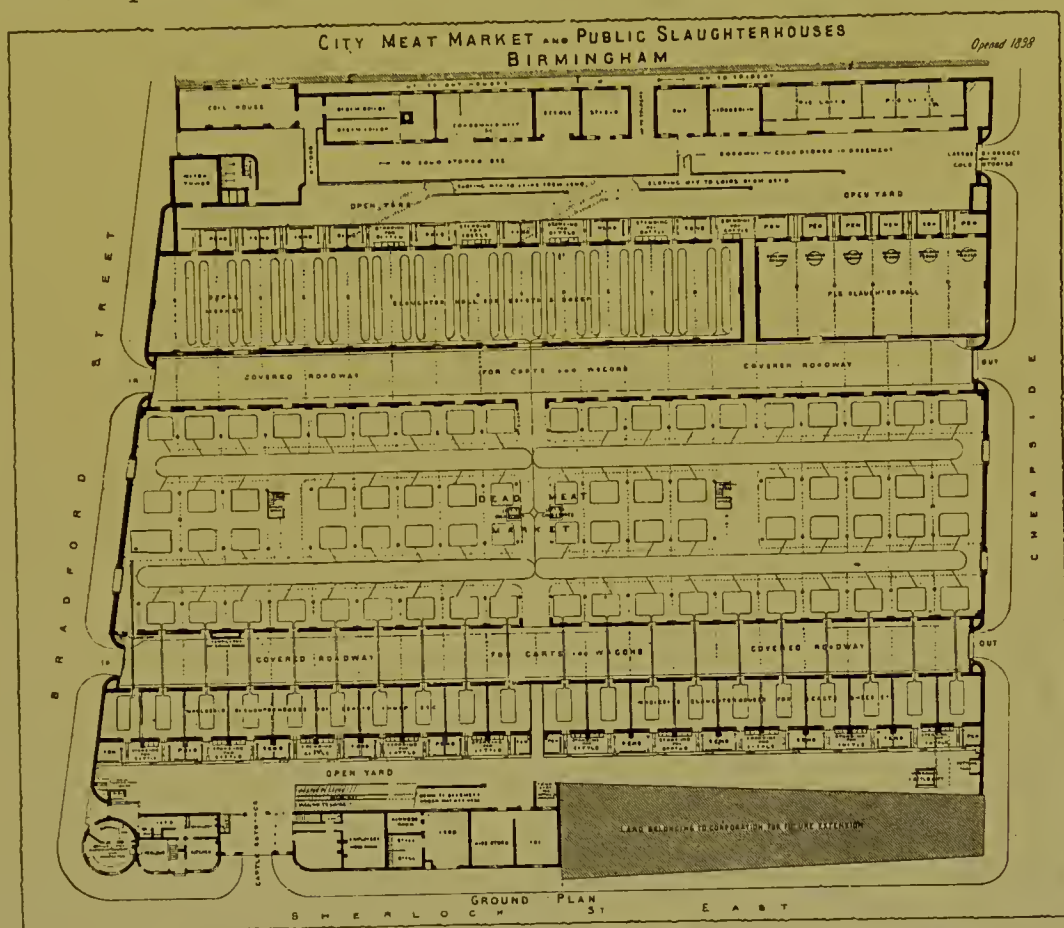
The inspecting staff on duty at the slaughterhouse consists of two, one of whom is constantly on duty, the other being there at intervals. In the markets referred to there is on sale not only home-fed meat but also frozen, chilled, and other imported meat from all over the world. As regards the inspection of meat and food-stuffs outside the slaughterhouse, that is to say, in the shops and private slaughterhouses in the city, this is now in the hands of two other inspectors who visit every main centre periodically, and who are sent for by all those who deal in meat whenever the latter are uncertain as to the quality of anything in their premises.

We are informed that it is extremely rare that it is necessary to take proceedings for the exposure of meat unfit for human consumption.

The Large Pork Markets. By far the largest markets for actual purchases of meat in Birmingham are the pork markets, where an immense number of pigs are bought and sold every week, these being destined for the ham and bacon establishments which exist on a very extensive scale, as well as for the sausage factories which are also very large. These markets and factories are also inspected in the usual way. It only remains to be said in connection with Birmingham that if the management of the meat industry in every large centre, as well as smaller ones, was found to be as efficient as it is here, the problem of meat inspection in Great Britain would be reduced to a comparatively simple one.

The Butcher's Jury. Any account of meat inspection in this city would be inadequate which took no notice of a very interesting and curious institution, which has been in existence since 1878 and which is known

as the butchers' jury. This body took its origin in a resolution adopted by the Markets and Fairs Committee, together with a large number of butchers, fishmongers, game-dealers and others, which resolution stated "that the butchers and dealers so nominate as many members of their trade, or persons who have been members thereof, as they may think fit,



PLAN SHOWING THE ARRANGEMENTS OF THE BIRMINGHAM CITY MEAT-MARKET AND PUBLIC SLAUGHTERHOUSES

from which number the Markets and Fairs Committee shall select not more than six, for the purpose of assisting such committee in the work of inspection. That the fishmongers, game- and poultry-dealers, &c., shall nominate as many members or former members of their trades as they may think fit, from which number the Market and Fairs Committee shall select not more than six for the purpose already stated. That when a seizure of any animal carcase, portion thereof, or any fish, game, poultry, &c., has been made by the inspectors, if the person to whom such belongs disputes the opinion of such inspectors, he may call in three of the selected members of the trade in order that they may give their opinion thereon. That no person be allowed to view anything that has been seized except the person to whom it belongs and the three selected members of the trade. That the M.O.H. and the veterinary inspector will, in the exercise of the power conferred upon them, give a final decision upon any matter in dispute."

This butchers' jury, which, it will be observed, is selected from

members of the industry of the Market and Fairs Committee, constitutes a very important and useful court of appeal in all disputed cases and appears to be of very great assistance in maintaining an efficient and just method of dealing with condemned meat. It provides a sure means of satisfying any meat purveyor that his food-stuffs are dealt with in a strictly straightforward way and prevents any of the suspicions or misunderstandings which occasionally occur where there is no knowledge or check upon the doings of the inspector by those who are interested in the meat. It is to be noted that the rules which govern the butchers' jury system are settled by the Markets and Fairs Committee of the City and by the Butchers' Trade Association working conjointly.

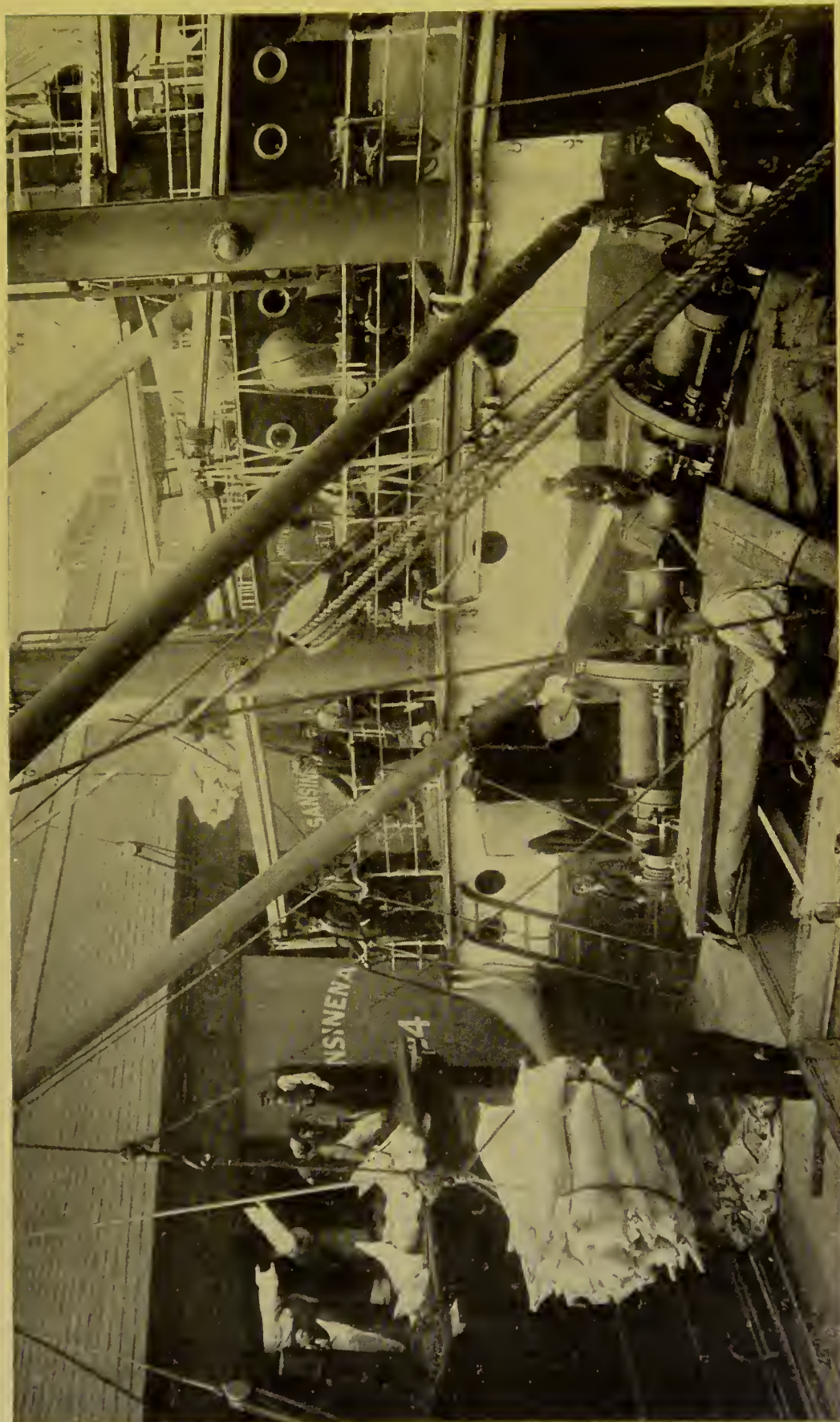
Meat Inspection and the Trade. The jury system, as applied to meat seizures, was the outcome of a movement started by the late Mr. John H. Rodway, of Birmingham, and has been of incalculable benefit to the trade as a whole. Meat inspectors had been inclined to be a trifle despotic, and often used their powers to an extent never contemplated by the Legislature. They would enter a shop, seize a piece of meat on the mere suspicion of its being unfit for human food, and forthwith, without more ado, the case was decided against the meat-purveyor.

Mr. Rodway insisted that a jury of butchers should be allowed, at the request of any tradesman, to examine the seized meat and try the case, or at least see that justice was done, and after long deliberation the Town Council of Birmingham eventually agreed to the proposal. The system worked so well that it soon spread to other towns, and to its operations may be traced the doing away with the strained relations that formerly existed between the trade and the authorities. Inspectors, knowing that a jury of experts can demand reasons for condemning any food, have adopted a more reasonable position, and the authorities as well as the trade are satisfied. The public are also protected in a better way than before, as the trade have done their utmost to make the jury system a reality, with the result that food really unfit for consumption is never knowingly allowed to be offered for sale. The honour of the trade is at stake, and the system gets fair play. It was only a strong man with sound ideas who could carry such a system into action, and the trade were fortunate in finding such a one in the late Mr. Rodway.

LIVERPOOL

This city is one of the largest centres in the country of the meat industry and is also one in which the systematic arrangement of food inspection of all kinds is extremely carefully attended to and most efficiently carried out. We are indebted to Dr. Hope, the M.O.H., for permission to quote from his annual report of the Health Department of the City of Liverpool, and to the Chief Veterinary Inspector, Mr. T. Eaton Jones, for his personal courtesy in showing the writer all that he wished to see.

For the purpose of carrying out the requirements of the various



VESSEL UNLOADING FROZEN MUTTON AT LIVERPOOL

sanitary Acts of Parliament, and the orders, bylaws and regulations made under these, the following staff is employed under the M.O.H. in connection with the inspection of food. Four inspectors of meat and animals, who are butchers by trade, but who before being allowed to hold this appointment are practically examined upon the lines indicated in the report of the Royal Commission on Tuberculosis ; six inspectors under the Diseases of Animals Act, five of whom are also port sanitary inspectors ; four inspectors of fish and food who are fishmongers by trade ; three inspectors under the Sale of Food and Drugs Act, who are required to hold a certificate of the Sanitary Institute of Great Britain or one equivalent to that ; two inspectors of cow-sheds and milk-shops holding a similar certificate ; one female superintendent of sterilised milk depots holding a similar certificate, and the Corporation Chief Veterinary Inspector.

Visiting the Cattle Steamers. The duties of the inspectors under the Diseases of Animals Act are to visit the cattle steamers, both foreign and cross-Channel, for the purpose of seeing that the provisions of the Foreign Animals Order, 1895, and the Animals (Transit and General) Amendment Order, 1904, are carried out. The cattle steamers are examined with reference to their fittings, ventilation, and general hygienic conditions, and supervision is exercised in regard to the cleansing and disinfection of the boats after the animals are landed. Any overcrowding or injury to the animals is reported.

Under the Animals (Transit and General) Order the master of the vessel is compelled to slaughter all animals that are seriously injured forthwith. Such animals are slaughtered on board the vessel and the carcasses are removed to the abattoirs. Cattle trucks are examined at the railway stations with reference to their fittings, cleansing, and disinfection, and all pens at the railways are supervised. The lairages and sale yards are visited to ascertain if they are duly cleansed and disinfected according to the regulations of the city council. The swine fever (movement from Ireland Order of 1904) provides that all pigs brought from Ireland for sale shall be accompanied by a licence authorising their landing, this licence to be issued to the inspector of the Department of Agriculture for Ireland. The swine must be marked by and at the instance of the owner, who resides in Ireland, by painting them with an indelible composition of a red colour with a broad line down the back and across the loins. This line to be not less than 9 in. long. These pigs must only be moved for the purpose of slaughter and the inspectors have not discovered any pigs landed in Liverpool from Ireland which have not been marked in accordance with this order.

As intimating the amount of work which falls upon the inspectors in connection with slaughterhouses, &c., we may quote figures which give the number of visits paid in two recent successive years.

SUMMARY OF MEAT-INSPECTION WORK DONE IN LIVERPOOL,
1907-1908*From Dr. Hope's Annual Report*

	1907.		1908.
Number of visits to slaughterhouses			
made by meat inspectors . . .	7,306	..	7,129
Number of visits to butchers' shops			
made by meat inspectors . . .	63,852	..	66,884
Number of visits to fish and fruit shops			
made by fish inspectors . . .	59,415	..	56,873
Number of visits to fruit shops made by			
fruit inspectors	18,993	..	15,348

The Record of 1908. Reference to the Tables in the report, giving the number of animals slaughtered in the city, shows that the relatively small number is probably due to the importation of cattle from the States and also to the importation of frozen meat, chiefly from the River Plate district. It is also observed that there has been a slight decrease in the number of sheep slaughtered compared with the large increase in the number imported, whilst, as regards pigs, both the number killed and the number imported has recently largely decreased. This very striking contrast is brought about by simply quoting the following figures for the year 1908, in which the total number of beasts slaughtered in the city was 5465, whilst the number imported dead for sale was 47,305. In this year also the total amount of meat which was found to be unfit for human food was about 988 tons, of which, however, over 700 tons of beef were from a cargo which had gone bad in consequence of a breakdown of the refrigerating apparatus on the vessel. Of fish there were seized about 117 tons, including both fresh fish and salt fish which had become tainted during transit, while no less than 200 tons of fruit was similarly dealt with.

All fish and fruit unfit for food are removed by the Corporation and mixed with suitable and other light refuse into manure for agricultural purposes, which is conveyed to its destination by canal-boats, the whole operation being supervised by inspectors. In 1908 the number of carcasses seized during the year by the M.O.H. and his inspectors was 1565, made up of 229 cattle, 183 calves, 871 sheep, 247 pigs, and 35 goats. One hundred and ten of the cattle were seized in consequence of the animals having suffered from tuberculosis. Seventy-six pigs were found similarly diseased, the majority of which came from Cheshire and Ireland.

At the Cattle Market. At the Liverpool cattle market during 1908 the number of animals inspected by the veterinary surgeons of the corporation were: sheep, 343,497; cattle, 50,606; calves, 3; other animals, 42, not a single case of infectious disease being found amongst them.

Under the Liverpool Parasitic Mange Order, 1908, veterinary examinations are made of all animals which are suspected of suffering from

parasitic mange and in the case of the affected animals they are immediately isolated and kept under observation until free from disease.

Thorough disinfection of the premises, harness, utensils, feeding-troughs, &c., is carried out under the inspection of the M.O.H. In this way in 1908 521 animals were examined, 85 being found affected, 42 died or were slaughtered, and 43 recovered. In the same year 380 visits were paid to piggeries, 4042 inspections of cow-sheds were made and 7083 inspections of dairies and milk-shops, in addition to 1081 visits to shippens for the purpose of examining cows, of which number 144 were referred to the veterinary surgeon. In addition to all these, a systematic inspection is also made of all premises used for the manufacture and sale of ice-cream, such visits in 1908 numbering 2344.

Destruction of Carcases in Liverpool. Dr. Hope's Report states that destruction of the carcases of animals affected with contagious diseases is carried out by the Animal Slaughtering Company, whose premises are licensed for this purpose by the Health Committee of the city, in accordance with the Orders of the Board of Agriculture and Fisheries. The carcases of cattle are destroyed under the supervision of an inspector of the Public Health Department. Specially tested iron pans, with covered lids, have been erected at this knackery for the purpose. The

carcases are placed intact in the tanks and strong sulphuric acid is added, then steam is applied until the temperature reaches 250° Fahr. The steam and all the odorous gases coming from the tank are conveyed by an exhaust pipe directly to the furnace, thus avoiding the creation of any nuisance. Meat which has been seized and condemned as unsound is similarly treated on the same premises. The number of bovine carcases so destroyed in 1908 was 126.



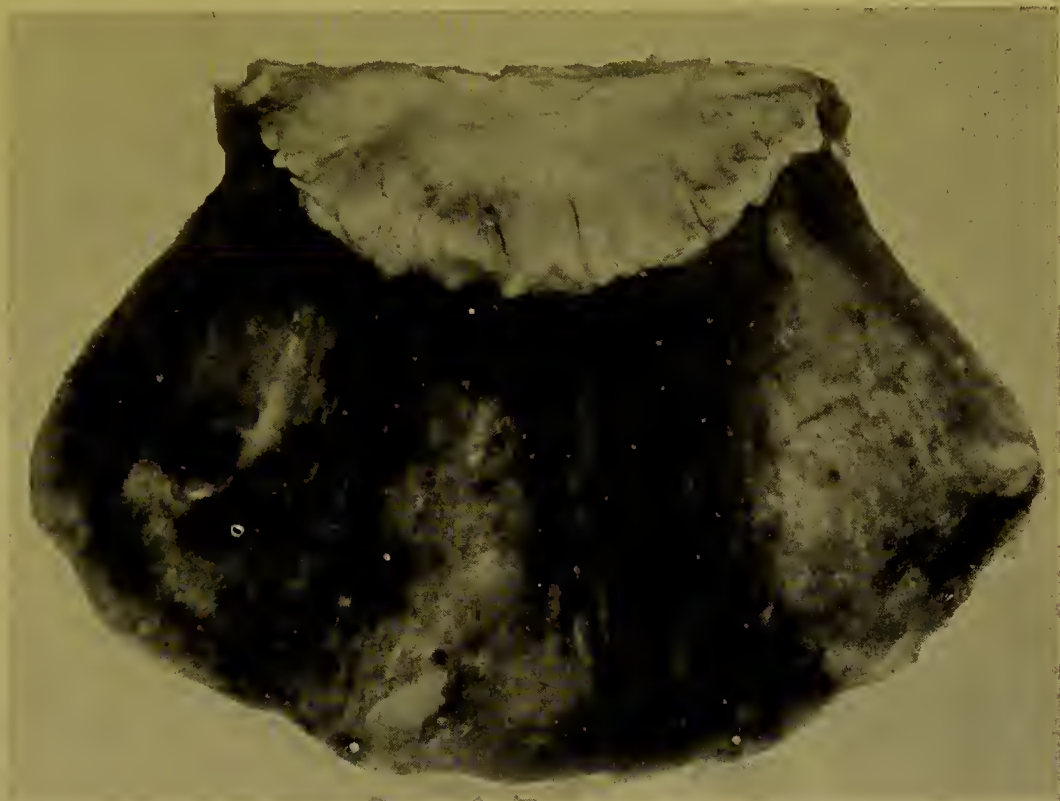
LUNG OF COW (BIRKENHEAD) AFFECTED WITH
PLEURO-PNEUMONIA

Dilatation of lymphatics distinct (but differences of colour not brought out in illustration).
(Preparation by S. Delépine.)

MANCHESTER

We are indebted to Dr. Niven, M.O.H., and Mr. W. J. Wade, Superintendent of Markets, for the following information with regard to the City of Manchester.

Meat inspection in the city is under veterinary supervision, and is carried out by a general veterinary inspector and his assistants, two of whom are also veterinary surgeons. The method of slaughter adopted at the Manchester city abattoirs in the case of cattle and pigs, is stunning, followed by bleeding ; and in the case of sheep and lambs, bleeding alone. Owing to the considerable Jewish population in the city, the Jewish method is also practised, of course by Jewish operators. The committee of the Markets Department are at the present time making arrangements with a view to increasing the staff of meat inspectors. The dead meat market



SMALL INTESTINE OF COW (AMERICAN CATTLE LANDING AT MANCHESTER PORT)
Nematode tubercles (seen by transparency as small dark, round patches). (Larvæ of *oesophagostoma* found by S. D.) Lesions sent to S. D. as possibly actinomycotic lesions. (Preparation by S. Delépine.)

which is open daily, is adjacent to the city abattoirs, and from this market the majority of the butchers in the district obtain their supplies of both home-killed and frozen meat. The following is the report of the Markets Committee for the year 1908, with reference to the meat, fish, &c., seized and condemned by inspectors during that year and it gives a very good idea of the general work and results of the inspectors in the city.

The Markets Committee present the following report :

“ Your Committee submit, for the information of the Council, the following report with reference to unwholesome meat, fish, &c., condemned and destroyed in this city under the Public Health Acts of 1875 and 1890, and also a report dealing with matters under the Diseases of Animals Acts, during the year ending December 31, 1908 :

" UNWHOLESOME FOOD

" *Meat and Fish*

Beef	282,430 lb.
Mutton	15,076 „
Veal	8,028 „
Pork	40,476 „
Venison	220 „
Imported offals	14,921 „
	<hr/>
	361,151 „
	<hr/>

Fish	232,166 lb.
Shell-fish	76,905 „
	<hr/>
	309,071 „
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Rabbits	{ 11,705 head 2 bdl.
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" *Game*

Hares	164 head
Capercaillies	1 „
Curlew	1 „
Snipe	1 „
Plover	1 „
Partridge	67 brace
Pheasants	33½ „
Ptarmigan	25½ „
Black game	23½ „
Grouse	104 „
Quails	10½ „
Woodcock	1 „

" *Poultry*

Turkeys	10 head
Fowl	179 „
Geese	3 „
Ducks	54 „
Pigeons	66 „

" *Miscellaneous*" *Fruit*

Bananas	10½ crates
Tomatoes	{ 260 packages 53 tins
Melons	7 crates
Grapes	13 barrels

“ Fruit

Strawberries	.	.	.	.	.	133 baskets
Blackberries	.	.	.	.	.	50 „
Raspberries	.	.	.	.	.	58 packages
Black-currants	.	.	.	.	.	242 baskets
Plums	.	.	.	.	.	400 „
Pears	.	.	.	.	.	{ 59 „
						{ 24 barrels
Oranges	.	.	.	.	.	37 boxes
Apples	.	.	.	.	.	{ 1 bag
						{ 8½ barrels
Cherries	.	.	.	.	.	68 packages
Apricots	.	.	.	.	.	27 boxes
Gooseberries	.	.	.	.	.	65 baskets
Damsons	.	.	.	.	.	34 „
Chestnuts	.	.	.	.	.	62½ bags

“ Vegetables

Onions.	.	.	.	.	.	53 packages
Cress	.	.	.	.	.	128 „
Marrows	.	.	.	.	.	8 „
Sprouts	.	.	.	.	.	101 bags
Peas	.	.	.	.	.	83 „
Potatoes	.	.	.	.	.	{ 16½ barrels and
						{ 1 railway-truck
						{ load (8400 lb.)
Salads	.	.	.	.	.	{ 1152 baskets
						{ 5 packages
Radishes	.	.	.	.	.	12 „
Cabbage	.	.	.	.	.	152 crates
Parsley	.	.	.	.	.	2 packages
Yeast	.	.	.	.	.	10 bags
Wheat	.	.	.	.	.	24 sacks
Chicory	.	.	.	.	.	4 cases
Eggs	.	.	.	.	.	½ case

With the exception of 1774 lb. of meat, 1512 lb. of fish, and 2 barrels of apples, which were seized while deposited or exposed for the purpose of sale, the above quantities were surrendered by the trade after being condemned by the inspectors. (The term “surrendered” includes cases in which the inspectors have discovered the diseased meat, &c., in the course of their duty.)

The number of carcasses, portions of carcasses, consignments of fish, &c., condemned during the year has been 6654, from the following causes :

Decomposition . . .	2606	Choked . . .	33
Tuberculosis . . .	1798	Nephritis . . .	31
Fluke disease . . .	339	Necrosis . . .	30
Abscesses . . .	185	Pericarditis . . .	25
Dropsy . . .	150	Peritonitis . . .	24
Cirrhosis . . .	150	Pleurisy . . .	21
Degeneration . . .	146	Septicæmia . . .	14
Emaciation . . .	135	Black quarter . . .	11
Tumour . . .	117	Inflammation . . .	9
Hydatids . . .	104	Unclean . . .	8
Fever . . .	104	Pyæmia . . .	8
Parasitic . . .	101	Septic metritis . . .	6
Congestion . . .	89	Bone taint . . .	5
Asphyxiation . . .	75	Unseasonable . . .	5
Pneumonia . . .	57	Ostitis . . .	4
Actinomycosis . . .	52	Icterus . . .	4
Mammitis . . .	54	Anthrax . . .	3
Unmarketable . . .	75	Hepatitis . . .	1
Swine fever . . .	39	Enteritis . . .	1
Injured . . .	34	Melanosis . . .	1

“ OF THE MEAT, FISH, &C., THERE WAS CONDEMNED :

	Lb.
“ In the abattoirs and carcase market . . .	339,241
(162,885 lb. being dressed meat consigned	
from places other than the city, 14,921 lb.	
of which was imported offals.)	
„ pig market . . .	12,278
„ private slaughterhouses . . .	1,588
„ railway stations . . .	9,764
„ shops . . .	1,104
„ Rusholme abattoirs . . .	819
„ Moss Side abattoirs . . .	103
At a farm . . .	100
In the Cold-air Stores, Elm Street . . .	1,412
„ Cold Stores, Copperas Street . . .	26
„ warehouses . . .	973
„ triperies . . .	50
„ Smithfield Fish Markets . . .	302,764
	<u>670,222</u>

“ Of the game, rabbits and poultry, fruit and vegetables, &c., there were condemned :

“ At the Smithfield Fish Markets—10,480 head and 2 bundles rabbits, 104 brace grouse, 67 brace partridge, 33½ brace pheasants, 25½ brace ptarmigan, 23½ brace black game, 66 head

JOHNE'S DISEASE

A portion of bovine intestine, showing the typical thickening and throwing into folds of the intestinal mucous membrane.



pigeons, 54 head ducks, 164 head hares, 179 head fowl, 10 head turkeys, 1 head capercailzie, 3 head geese, 10½ brace quail, 1 brace woodcock, 1 head curlew, 1 head snipe, 1 head plover.

“ At the Smithfield Fruit and Vegetable Market—628 head rabbits, 13 bags peas, 12 packages radishes, 16½ barrels potatoes, 2 packages parsley, 76 crates cabbage, 62½ bags chestnuts, 208 baskets black-currants, 275 baskets plums, 128 packages cress, 8 packages marrows, 259 packages tomatoes, 58 packages raspberries, 59 baskets and 24 barrels pears, 50 packages onions, 93 bags sprouts, 32 baskets damsons, 41 baskets blackberries, 1152 baskets and 5 packages salads, 27 boxes apricots, 8½ barrels and 1 bag apples, 68 packages cherries, 10 baskets gooseberries, 82 baskets strawberries, 37 boxes oranges, 13 barrels grapes, 10½ crates bananas, 7 crates melons, 4 cases chicory.

“ At the Railway Stations—9 baskets blackberries, 2 baskets damsons, 70 bags peas, 1 truck load (8400 lb.) potatoes, 76 crates cabbage, 10 bags yeast, 55 baskets gooseberries, 125 baskets plums, 51 baskets strawberries, 1 package tomatoes, 8 bags sprouts, 3 packages onions, ½ case eggs.

“ At the Cold Air Stores, Elm Street—384 head rabbits.

“ At the Cold Stores, Copperas Street—115 head rabbits, 34 baskets black-currants.

“ At the City Abattoirs—98 head rabbits.

“ At Warehouses—24 sacks wheat, 53 tins tomatoes.

“ In addition to thorough inspection at the Abattoirs and Markets, 2976 visits have been made to private slaughterhouses (55 being at the request of the butchers) and 12,513 carcasses examined, 38 carcasses and portions of 30 others being condemned as unfit for human food.

“ 8531 visits have been made to the meat, fish, fruit and provision shops, and in 43 cases the shopkeepers were severely cautioned for having small amounts of unsound food in their possession.

“ 195 visits have been made to the railway stations to prevent the distribution of unwholesome food consigned to the City.

“ Frequent visits have been made to the triperies, sausage and pie factories.

“ Five Orders for the destruction of unsound food have been obtained at the City Police Courts during the year.

“ 2512 certificates have been granted, chiefly to commission agents for the purpose of being forwarded to the consignors.

“ CONTAGIOUS DISEASES OF ANIMALS

“ During the year there has been no outbreak of glanders in the City.

“ There have been 7 outbreaks of swine fever within the City, 106 pigs being attacked by the disease. There has been one prosecution under the Swine Fever Order of 1894 for failing to notify the existence of disease; a fine of £1 and 9s. costs was imposed.

"Seventeen outbreaks of parasitic mange in horses have been dealt with by the Inspectors under the Manchester (Parasitic Mange) Order of 1906 and the Lancashire (Parasitic Mange) Order of 1908, 40 horses being affected with the disease. There were three prosecutions under this Order for failing to notify the existence of this disease, and fines amounting to £13 and 27s. costs imposed.

"There have been three cases of anthrax, these being dressed carcasses consigned to the Carcase Market from country districts. The circumstances in each case have been reported to the Board of Agriculture and Fisheries and to the County Authorities, who have taken proceedings in each case against consignors.

"The Pig Market has been visited daily by a Veterinary Inspector under the Swine Fever Orders, 1894 and 1908, the Swine Fever (Regulation of Movement) Orders, 1903 and 1908, and the Swine Fever (Movement from Ireland) Orders of 1904 and 1906, all cases of infringement of such Orders being immediately reported to the Board of Agriculture and Fisheries, or dealt with by the Inspectors. There has been one outbreak of swine fever in this Market, which was dealt with by the Board of Agriculture and Fisheries.

"390 visits have been made to the Railway Stations and Cattle Docks for the purposes of the Animals (Transit and General) Order of 1895.

"The Horse Market has been visited each month by a Veterinary Inspector.

"On behalf of the Committee,

"(Signed) D. McCABE,

"Chairman."

"Town Hall, Manchester,

"February 19, 1909.

SALFORD

The M.O.H., Dr. C. H. Tattersall, and Mr. Joseph Whitehead, F.R.C.V.S. have been kind enough to send us the following information with regard to meat inspection in this city.

Meat inspection in Salford is under the supervision of a veterinary surgeon, the duties of this officer being to inspect all cattle at the weekly market, the railway, cattle docks, &c., to inspect meat at the various private and public slaughterhouses, to inspect dairy cattle in the borough, and to visit dairies outside the borough which send milk into this district.

In addition, he is the veterinary inspector under the Diseases of Animals Act of 1903.

The cattle market is held on Tuesdays, and is probably the largest in Great Britain.

All diseased, suspicious, and emaciated animals are dealt with under the powers conferred in sect. 116 of the Public Health Act, 1875. This deals chiefly with tuberculous animals. These animals are slaughtered in a public slaughterhouse situated in the market.

A careful supervision is given to the railway cattle docks for the purpose of the arrest of carcasses of animals which have died in transit

or which have been bled on the train when at the point of death. These are also sent to a public slaughterhouse and there dressed and submitted to inspection.

Inspecting the Private Slaughterhouses. There are eighteen private slaughterhouses in the borough and three public slaughtering booths. Fifteen of these are situated in various parts of the borough, the other three being adjacent to the public slaughterhouses in the cattle market.

In fourteen of the private slaughterhouses, cattle and sheep only are slaughtered; in one, cattle, sheep, and pigs; and in three, only pigs are slaughtered.

These slaughterhouses are frequently visited and, as far as possible, at the usual time of slaughtering or soon after.

In the private slaughterhouses a very good class of cattle is killed, viz., bullocks and heifers (no cows), so the amount of tubercular beef discovered is very small.

In one of the pig slaughterhouses a large number of pigs are killed weekly, and the amount of tubercular pork discovered last year was very large, chiefly in pigs brought from the dairying counties of Cheshire and Shropshire.

Frequent visits are made to premises where cooked meats are prepared, and recently a sanitary inspector has been appointed to work under the veterinary surgeon, and it is hoped to thus get a higher standard of cleanliness.

As the Manchester meat market is in very close proximity to the Salford boundary, the great majority of the retail butchers buy in that market. This, of course, lightens the work, but when inspecting shops one is often informed by the butcher that he buys his supply at the Manchester market. It is very difficult to verify this statement, and thus a system of marking examined carcasses would be of great assistance to the inspectors of the districts surrounding Manchester.

OLDHAM

Dr. James B. Wilkinson, M.O.H. for Oldham, informs us that most of the meat consumed there, but which is not slaughtered in the place, comes from the Manchester wholesale meat market, and some from Birkenhead, in addition, of course, to a considerable quantity of frozen meat. There is a close inspection in the town carried out by the chief inspector and the foods inspector, both of whom are qualified. The following paragraphs are taken from the report by the M.O.H. for 1909, and to this may be added the fact that during that year powers have been obtained prohibiting the blowing of carcasses.

Slaughterhouses. "There are fifty-two slaughterhouses in the borough which are annually licensed. One licence lapsed during the year, and one new slaughterhouse was licensed.

"This new slaughterhouse has been converted from some old houses, the interiors of which have been entirely removed, the walls properly

cemented and the floors concreted, and the buildings open into an enclosed yard. This slaughterhouse may be considered up to date and one of the best in the town.

“The slaughterhouse which has been disused has been converted into a gut-scraping establishment, for which purpose the premises are suitable.

“Of the fifty-two applications for slaughterhouse licences which were received during the year, forty-six of them were considered satisfactory; six were reported to the Health Committee, and of these one is in a small yard but is kept very clean, and there is not much killing; one other had no lair for the animals, and the Committee postponed the granting of the licence till this was erected. The licence was granted later in the year on the work being completed. In one other case the licence was refused unless the premises were entirely reconstructed. Eventually the licence lapsed. In one other case additional ventilation was put in, and in the others improvements were effected in the premises and the licences were eventually granted.

Amount of Diseased Meat. “The slaughterhouses are visited very frequently by the food inspector, and also by the chief inspector, and a considerable amount of diseased meat has been destroyed. It is now the almost invariable custom of the butcher, on finding a diseased carcase, to send at once for the inspector, and submit the same to him before the carcase is prepared for sale. It has not been necessary to take legal proceedings against any butcher in the town, and the meat supplied by those butchers having slaughterhouses of their own is generally found to be of a high class. There is probably very little diseased meat sent into the town.

“SUMMARY

	Visits paid.	Notices served.	Notices com- plied with.
Slaughterhouses. . . .	4733	67	67
Dairies	246	4	4
Cowsheds	534	30	18

“DISEASED OR UNSOUND FOOD DESTROYED

	Tons.	Cwt.	Qr.	Lb.
14 oxen	3	4	0	4
7 sheep	0	3	3	1
17 pigs	1	6	2	8
8 calves	0	3	2	2
9 rabbits	0	0	1	0
Meat	6	19	0	22
Offal	1	12	3	8
Fruit	2	13	2	11
Fish	0	6	0	5
Preserved goods	0	3	2	3
Total	16	13	1	8

“The following is a summary of diseased, &c., animals reported to or found by the meat inspector during the year :

Diseased conditions.	No. reported.	No. found by inspector.	Total.
Tuberculosis	124	113	237
Damaged or over-kept foods	14	153	167
Liver flukes	1	31	32
Dropsy	11	3	14
Hydatids	2	9	11
Puerperal septicæmia	2	0	2
Pneumonia	11	1	12
Smothered	1	2	3
Immature veal.	2	4	6
Injured in transit	5	1	6
Pyæmia	0	1	1
Pleuritis	1	0	1
Garget	1	0	1
Jaundice	2	0	2
Obstruction of bowels	2	0	2 ”

CREWE

We are informed by Dr. G. Buckley, M.O.H., that the inspection of slaughterhouses and meat in Crewe is undertaken by one of the assistant sanitary inspectors (who possesses the meat inspector's certificate) and by the M.O.H.

In addition to this there is an Association, known as the Butchers' Vigilance Association, of which the majority of butchers in the town are members. The Association has a scheme whereby the members are compensated for the loss of any diseased carcase condemned. There is thus little inducement for the butchers to conceal diseased carcasses.

The butchers themselves frequently call upon the M.O.H. to examine carcasses. There is no public abattoir in the borough, and the slaughtering is done in sixteen private slaughterhouses.

NEWCASTLE-ON-TYNE

In this city the inspection of all the meat and provisions is placed under the care of the chief veterinary officer, who is also veterinary inspector under the Diseases of Animals Acts. Mr. Thomas Parker, M.R.C.V.S., the present veterinary officer, has been kind enough to supply the following description of the various duties which come under his department, together with some interesting details showing local methods. He has also been kind enough to send copies of the recent annual reports made to the M.O.H., from which some paragraphs are quoted. Mr. Parker thus describes the routine duties which fall to his department, and the description is an excellent example of what the meat inspector may expect

to have to do in similar cities ; this, together with Mr. Henderson's account of the practice in Edinburgh, covering practically the whole ground of duties.

The Work of Inspection. "To perform the duties of my office I am provided with two lay assistants, one of whom holds the certificate of the Royal Sanitary Institute for Meat Inspection. These two assistants are kept going different rounds each day. Certain of the work is performed regularly each week, *e.g.* inspection of slaughterhouses and cattle markets. The two assistants act as detectives rather than experts in the actual inspection of the meat, except in cases self-evident. They detain carcasses when necessary for my inspection and judgment finally as to fitness. At the same time, whilst visiting the slaughterhouses, there is plenty to do in looking after cleanliness, &c., of fittings of such premises. The same applies to the inspection of cattle and licensed pig lairs and dairy cow-sheds. They again pay particular attention to condition as to cleanliness and structural defects of buildings, &c. They do not examine cows or the other animals as experts ; but should they, whilst on their rounds, see anything apparently wrong, then they report to that effect. Pork butchers' workshops and sausage factories, and wholesale meat shops are being continually visited and at the same time the wholesale fruit and provision markets.

Examining the Imports. "Since the beginning of February 1909, we have taken over the whole of the work under the new Foreign Meat Regulations. This has greatly increased our work, and many a time have we been engaged from 11 P.M., on Sunday until 3 P.M. on Monday at a stretch on the quayside, owing to the arrival at intervals of fresh carcasses of beef from Denmark, besides fresh offal and casks of other foods, *e.g.* ox-cheeks, pigs' feet, weasands, maws, &c. Besides these vessels we have vessels coming from South America with frozen meat from Buenos Ayres. I generally make an inspection (general) on board ship. The carcasses (quarters) are again inspected at intervals during the discharging. Of course, each quarter is frozen hard and packed up in wrappers and landed out of the ship's hold at about a dozen at a time by crane, directly into a cart on the quayside, and taken away to the refrigerator. There I again make several inspections, and also at the wholesale frozen meat shops. I also open boxes or cases of food-stuffs at random, both at the shop and at the refrigerator. If the heart, kidneys, or any other articles are tightly packed and frozen in that condition, we detain them until thawed out and then examine. They should be frozen separately and packed in that way to facilitate inspection. We generally receive about fifteen of these large South American vessels yearly. The foreign meat regulations prohibit 'scrap meat.' Quite recently I have 're-exported' some barrels of ox-cheeks owing to their containing large proportions of scrap meat. Last week I re-exported a barrel of weasands owing to there being a large amount of scrap meat packed near the bottom of the barrel. Not long ago I stopped a tuberculous carcase of a cow, unaccompanied by any organs, and stamped on every quarter as having

been examined and passed as fit for food by Government inspection of the country of exportation. I first showed it to the Consul of that country and then destroyed it. Two years ago, I put a stop to the tripe coming into this city with a large quantity of boric acid. I got samples containing from 190 up to 220 grains of boric acid to the pound of tripe.

“A South American vessel that arrived here on October 13 brought 4380 quarters of beef ; 8000 carcasses of mutton ; 60 bags of ox hearts ; 40 bags of ox tails ; 40 bags of ox skirts ; 50 bags of ox tongues ; 60 cases of ox livers ; 40 cases of sheep hearts ; 40 bags of sheep kidneys ; 60 cases of sheep plucks ; 400 cases of frozen tripe ; 21 cases of suet.

The Export of Tram-horses for Food. “Under the Exportation of Horses Order horses are examined every Friday here. A fortnight ago I was kept busy on the quay from 9 A.M. until 3.4 P.M. Last week I was busy from 9.20 A.M. till 10.30 P.M. I examine all these horses for glanders, &c., and also as to fitness for travelling. We average from 80 to 150 per week. These horses are going away to be used for meat, therefore we are doing meat inspection for the foreigners. I also inspect the live animals arriving from Aberdeen each week before they leave the vessel. This is every Sunday. Unfortunately in many of my duties lay assistants are really of no assistance whatever, *e.g.* examining live animals for disease and deciding in many cases as to condemning meat. But to do all the work I am supposed to be doing I should require two additional lay assistants and a qualified assistant and a clerk.”

The Varied Duties of the Meat Inspector. The following paragraphs are taken from the Veterinary Officers' Annual Reports (1907, 1908, 1909), and give an excellent idea of the various duties which the meat inspector may be called upon to carry out in a large British city, together with the results of such action. We are indebted to Mr. Parker, M.R.C.V.S., for these reports.

“The animals of the City and County of Newcastle-on-Tyne have remained comparatively free from contagious diseases (as defined by the Acts) during the past twelve months. Besides horses, cattle, sheep, pigs, and dogs within the city, animals which have been subjected to regular and frequent inspection include those stationed at, or passing through the cattle and licensed pig lairs ; the railway (animals' arrival) docks ; the horse and cattle fairs on Town Moor ; the horse and cattle fairs in cattle markets ; the weekly cattle, sheep, and pig markets ; dog shows, and the quayside (exportation of old horses).

“*Cattle and Licensed Pig Lairs.* There are twenty cattle and ten licensed pig lairs. In connection with the largest group of cattle and pig lairs in the city, great improvements have been made. Leading to and separating the blocks of buildings new roads and drainage have been constructed, and it is now possible, for the first time, for these premises to be cleansed and disinfected as required.

“The railway cattle docks have been inspected regularly, and have always been found cleansed and disinfected satisfactorily.

“*Cattle Markets.* The following Table shows the number of cattle,

&c., exposed for sale in the Newcastle cattle market during the year, and the number for a year's period ten and twenty years ago respectively :

" TABLE NO. I

Year.	Cattle.	Calves.	Sheep.	Swine.
1908	88,696	8,134	302,142	37,996
1898	96,889	8,165	342,215	39,053
1888	115,168	7,642	322,211	40,207

" *Foreign Cattle.* During the year no foreign cattle were landed at St. Lawrence Sanatorium. By means of an Order, issued by the Board of Agriculture in February of last year, Newcastle-on-Tyne ceased to be a port having a foreign animals wharf for the landing of foreign cattle.

" *Anthrax.* Three cases occurred during the year, one being in respect of a carcass sent to the city to be sold as food, the remaining two being connected with an outbreak within the city. The first case was as follows : Four quarters of beef were sent to a meat mart within the city to be sold, accompanied by a letter stating that the animal had been slaughtered owing to an accident. On examining the carcass, it was found to be one of anthrax. The carcass was promptly destroyed, and, on making further inquiries, it was discovered that other animals on the farm, from which the carcass came, were ill, several of which died. It was also found that the beast had been in a dying state when bled. It was dressed and the internal organs were thrown into a river near the farm, and the butcher who had dressed the carcass took ill also. The butcher was not known to be affected with anthrax until the authorities had been informed of the existence of the disease in the carcass sent in to be sold. Fortunately, anthrax was then suspected and the butcher was immediately removed to the Royal Victoria Infirmary, Newcastle, where he was promptly treated and recovered. The farmer and another butcher who assisted him in the packing and sending of the beef to Newcastle to be sold were each heavily fined.

" *Outbreak within the City.* A number of fat bullocks and heifers arrived from Scotland by rail (intended for next day's (Tuesday) cattle market) and were housed overnight in a cattle lair. At 5.30 A.M. next morning, the drover in charge found one of the animals dead. It was then bled and carted to a slaughterhouse where it was quickly dressed, with the idea of saving the beef. Immediately after receiving this report, the carcass and organs were examined, when it was found to be one of undoubted anthrax. The butchers who had nearly completed the dressing process were ordered to cease work at once, and remain stationary until the arrival of disinfectants, &c. Within a few moments they removed their smocks, aprons, &c., and were thoroughly washed and disinfected. The carcass, organs, &c., were destroyed, and the railway cattle waggons, lairs, cart, slaughterhouse, and everything connected

with the outbreak were thoroughly cleansed and thoroughly disinfected, and the premises reopened before 4 P.M. the same day.

“The remaining cattle were kept isolated and under supervision. Within a few days one of these was found ill, showing symptoms of anthrax. The seven unaffected were then removed and slaughtered; these were found in perfect condition and were passed for food. The animal attacked died after three days' illness, and a microscopical examination of a specimen of blood revealed the existence of anthrax. This carcase was, without delay, destroyed, and the premises were thoroughly cleansed and disinfected. No further outbreak has occurred.

“*Foot and Mouth Disease.* After a period of six years' freedom from the disease in this country, an outbreak occurred in Edinburgh in February 1908.

“The Board of Agriculture scheduled a large area (several counties) including the centre of infection, from which movement of cattle was prohibited.

“Following this, the County of Northumberland and the City of Newcastle each made local orders prohibiting the moving of cattle into Northumberland and Newcastle respectively, from practically the southern half of Scotland.

“Then Northumberland issued another order which prohibited the removal of cattle from Newcastle into any other part of the county's administrative area, which greatly interfered with the business of the Newcastle cattle market.

“Another order issued by the Board prohibiting the movement of foreign hay and straw into Great Britain excepting by special licence allowing straw to be imported for manufacturing purposes, caused an extra amount of work, where steps had to be taken to prevent the re-distribution of imported straw from local warehouses to various districts in the county.

“Thanks to the prompt and energetic action taken by the Board of Agriculture, the disease, within a week or two, was absolutely stamped out.

“*Tuberculosis and other diseases.* Cases have been found to exist both in the cattle lairs and cattle markets, &c., as will be seen in the following two Tables:

“TABLE NO. 2

	Tuberculosis.		Anthrax.	Other causes.	
	Alive.	Dead.	Dead.	Dead.	Alive.
Live and dead animals sent from places within the city (other than registered cowsheds and cattle markets), with owners' consent for destruction.	5	1	1	11	4
	(Cows)		(Heifer)	(14 cows, 1 bull)	

"TABLE NO. 3

	Tuberculosis.	Emaciation, Malignant catarrh, Paralysis,&c.	Rickets, &c.
Cattle sent from places outside the city to the cattle market where they were seized and afterwards destroyed as being diseased and unfit for human consumption.	3 (Cows)	3 (Sheep)	3 (Swine)

Meat, Provisions, Fish, Fruit, &c. "The number of carcasses condemned and destroyed for tuberculosis during the year 1908 is greater than for any similar period previous to that. The Newcastle, Gateshead, and District Butchers' Cattle Insurance Society has paid to its own members as compensation during the year 1908, £555 5s. 10d., in respect of their claims for carcasses condemned for tuberculosis. This is an increase of £113 10s. 6d. on the amount paid during 1907, notwithstanding the fact that 2264 fewer bullocks and heifers were insured during 1908, as compared with 1907. At the present time the Butchers' Associations throughout the country are agitating most strenuously for a guarantee from the farmers and dealers that the animals they purchase shall be what they purport to be, namely, sound food. As matters stand regarding this disease, such a demand is well nigh impracticable; and to deal fairly with all concerned, the question must be considered as a national one.

"The method that butchers and farmers, &c., should adopt, as a temporary measure to protect themselves, is a system of mutual insurance, through the medium of which all fat bullocks and heifers would be insured against tuberculosis up to full market value, and which can be accomplished for a cost of 1s. 6d. per head, *i.e.* 9d. each payable by buyer and seller.

"The Newcastle Society have led the way by adopting such a method, which is now—in this district—an accomplished fact. The next step would be for the butchers and farmers to become united and petition the Government:

- (1) To pay, on behalf of the public, a share of this insurance.
- (2) To commence a system of gradually eliminating the disease from the herds of this country, *viz.*:
 - (a) By application of the tuberculin test to all cattle.
 - (b) Isolation of diseased from healthy.
 - (c) Better hygienic conditions of housing, &c.
 - (d) Destruction of clinically diseased cattle, with compensation to owners.

- (e) Government warranty with all cattle officially certified and branded as having been tested and found free from disease and sold for slaughter for food purposes.
- (f) Uniform system of meat inspection throughout the country under the control of veterinary officers.

“Such measures having been put into operation, and, after a time, the object aimed at accomplished, the onus of fully guaranteeing cattle against disease, when offered for sale in the live-stock markets for human food, would naturally fall completely upon the shoulders of the producer.

Foreign Meat. “During the past year a revolution in the requirements as to the inspection of certain animals (carcases and offal, &c.) slaughtered for food purposes, prior to exportation into this country, has occurred, through the issuing by the L.G.B. of regulations which will be some measure of guarantee against the importation of diseased food, if :

- (1) The importing authorities fully carry out the requirements of the regulations.
- (2) The official inspection by the exporting authorities faithfully and fully ensures that which the labels and brands on the packages and carcases, &c., represent.

“But it should not be forgotten that no Government can have completed its duty whilst it requires such inspection abroad and at its ports of arrival, if, at the same time, it absolutely neglects a uniformity of such inspection, within its own country, of its own home-fed stock, slaughtered for food purposes; nor until it ensures that the wholesale meat shops, sausage factories, fruit-, fish-, provisions-, and meat-markets and slaughterhouses, have been visited and inspected as often and regularly as possible.

Slaughterhouses. “Until quite recently there were one hundred and thirty-two slaughterhouses licensed within the City and County of Newcastle-on-Tyne. They are arranged in five groups, situate at Byker, Stepney, Benwell, Scotswood Road, and Dispensary Lane, with the exception of twenty private slaughterhouses which are scattered over various parts of the city and outskirts, chiefly in back streets. Of the latter twenty, fourteen were reported as unfit, and after being surveyed by the Sanitary Committee it was decided that they be not re-licensed.

“The Stepney group (fourteen) were objected to owing to there being no hunger-houses. The Sanitary Committee decided that they be re-licensed for three months, subject to their being converted into seven slaughterhouses and seven hunger-houses, to the satisfaction of the Veterinary Officer. This work is now being rapidly pushed on, and since new lighting, ventilation, and glazed tiling of the internal walls have been introduced, a great improvement has been noted. The new Scotswood Road Corporation slaughterhouses (seventeen in number and each provided with a hunger-house) together with a public slaughtering hall, were completed some weeks ago. The better half of these are unoccupied, owing, it is alleged, to the high rents charged, and so far, the public slaughtering hall has not been used at all.

"It is hoped that the day will arrive when it will be possible—both before and after slaughtering for human consumption—to inspect the whole of the animals brought to the city for that purpose in one central block of slaughterhouses or abattoir, situate in some convenient part of the city, preferably near the cattle market and railway cattle docks."

The following animal products were destroyed during the year 1908 :

TABLE NO. 5

Cause.	Rinds.	Hides.	Sheep skins.	Tallow.
Anthrax . .	—	1	12	8 stones
Decomposition .	2 barrels	—	—	—

The Inspector's Report for 1908. The following is Mr. Parker's Report for the year 1908 :

"The animals of the City and County of Newcastle-on-Tyne have remained comparatively free from contagious diseases (as defined by the Act) during the past nine months. Besides horses, cattle, sheep, pigs, and dogs within the city, animals which have been subjected to regular and frequent inspection include those stationed at, or passing through the cattle and licensed pig lairs ; the railway (animals' arrival) docks ; the horse and cattle fairs on Town Moor ; the horse and cattle fairs in cattle markets ; the cattle, sheep, and pig markets ; the dog shows ; the foreign animals arrival docks (St. Lawrence Sanatorium) ; the quayside (old and infirm horses exported for food purposes).

"*Cattle and Licensed Pig Lairs.* There are twenty cattle and nine licensed pig lairs. One of the pig lairs has ceased to be used as such, no further licence being applied for. In connection with the largest group of cattle and pig lairs in the city, decided sanitary improvements are being made. Leading to and separating the buildings are roads which are being reconstructed, concrete being used, and the drainage is being put in thorough repair, so that cleansing and disinfection may be carried out as required.

"*Cattle Markets.* The following Table shows the number of cattle, &c., exposed for sale in the Newcastle Cattle Market during the year, and the number for a year's period ten and twenty years ago respectively :

"TABLE NO. 1

Year.	Cattle.	Calves.	Sheep.	Swine.
1907	95,993	8,719	306,777	37,789
1897	99,084	7,304	340,382	31,798
1887	110,064	8,780	325,483	28,964

TABLE No. 6. THE FOLLOWING CARCASSES, &c., HAVE BEEN DESTROYED AS BEING UNFIT FOR HUMAN CONSUMPTION, DURING THE YEAR 1908

	Carcasses.					Plucks.			Lungs.			Ox Hearts.			Livers.			Kidneys.		Ox Tongues.	Heads.			Sausage Skins.
	Beef.	Veal.	Mutton.	Pork.	Goat.	Pig.	Sheep.	Calf.	Ox.	Sheep.	Pig.	Ox.	Pig.	Sheep.	Ox.	Pig.	Sheep.	Ox.	Pig.		Ox Feet.	Ox Tripe.	Sheep.	
Tuberculosis	89½	10	—	31	—	22	4	67½	62	63	—	—	—	—	—	121	—	1	61½	60	—	—	—	lb.
Anthrax	3	—	—	11	—	9	—	1	1	1	—	—	—	—	—	2	—	—	1	112	—	—	—	
Swine erysipelas	—	—	—	29	—	29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
„ fever	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Malignant catarrh	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Septicæmia	1	—	1	—	—	—	—	—	1	1	—	—	—	—	—	2	—	—	1	—	—	—	—	
Pyæmia	1	—	—	—	—	—	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	
Abscesses	—	—	—	—	—	1	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	
Jaundice	—	1	1	3	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Rachitis	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Congestion	—	—	—	—	—	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Pleurisy and pneumonia	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Peritonitis	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Metritis	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Nephritis	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Cirrhosis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Emaciation	1	2	2	4	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Dropsy	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Parasitical diseases :	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Echinococcus disease	—	—	—	—	—	2	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	
Strongylus paradoxus	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
„ micurus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Angioma	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Carcinoma	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Imperfect bleeding	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Asphyxia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Natural death and died during transit	—	7	23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Traumatism	1½	—	8½	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Decomposition	8	9½ + 36 lb.	23 + 17 lb.	10½ + 21 lb.	½	—	—	—	—	32 lb.	17 lb.	—	—	—	—	28 lb.	48 lb.	—	—	—	—	—	—	

“ *St. Lawrence Sanatorium.* Table No. 2 shows the number of foreign cattle landed during the year, and the number landed during the same period, ten, twenty, and thirty years ago respectively :

“ TABLE NO. 2

Year.	Cattle.	Calves.	Sheep.
1907	Canada .. 239	—	—
1897	United States, 1,331 Canada, 4,344	5	1,169
1887	55,757	4,348	59,428
1877	33,149	1,476	22,398

“ The number of old and infirm horses that have been shipped to go to the Continent during the year 1907 is 2678.

Anthrax. “ Two cases occurred, one being in respect of a bullock which was found dead in a slaughterhouse. The whole carcase was removed and destroyed, the premises being promptly cleansed and disinfected. The other case may be briefly described as follows: Four quarters of beef were brought by the managing butcher of a Co-operative Society to a meat mart within the city to be sold. The butcher stated that the beast had hung itself, and that before bringing it he had taken it to their own veterinary surgeon, who had examined and passed it as being healthy. None of the internal organs were sent with the beef. The beef, after careful examination, was passed. Nothing more was known of the case until some days after, when the two butchers who dressed the beast were admitted to the Royal Victoria Infirmary, one of whom died from anthrax. A woman residing in Gateshead, who had purchased some of the meat, was also admitted to the infirmary, having become infected through handling the meat. The butcher and the woman recovered. During later proceedings it transpired that when the animal was found dead, blood was seen oozing from the anus, and that when it was being dressed the internal organs were found abnormally enlarged and covered with blood, with extensive enlargement and softening of the spleen. These appearances, typical of anthrax, instead of being disclosed, were kept a secret, the whole of the internal organs having been buried. The managing butcher, on arrival in Newcastle with the carcase, was careful to unfold a story in the form of a deliberate lie, and in order to replace the beef for his own customers, whilst at the same time to evade suspicion, he purchased some cow beef at a small price under the cloak of another person's name. The managing butcher was afterwards twice heavily fined in respect of the carcase in question—once by the

County Magistrates and once by the City Magistrates—and was dismissed from his employment by the Co-operative Society.

Tuberculosis and other Diseases. “Cases have been found to exist both in cowsheds and cattle markets, &c. The following Table shows the number of cattle found affected in the cattle market and other places except the registered cowsheds.

“TABLE NO. 3

	Tuberculosis.	Old age and emaciation.
Cattle sent from places outside the city to the cattle market, where they were seized and afterwards destroyed as being diseased and unfit for human food.	3 (Cows)	4 (Cows)

“TABLE NO. 4

	Tuberculosis.	Old age and emaciation.	Injuries during transit.
Cattle sent to the knackers from places (other than the registered cowsheds) within the city and county of Newcastle-upon-Tyne, with the owner's request for destruction.	4	6	2

“*Meat, Provisions, Fish, Fruit, &c.* The number of carcasses of beef condemned and destroyed for tuberculosis has been greater during the nine months ending December 31, 1907, than for any similar period previous to that.

“The Newcastle, Gateshead, and District Butchers' Cattle Insurance Society has paid to its own members as compensation during the year 1907 the sum of £438 3s. 6d. in respect of their claims for carcasses condemned for tuberculosis. The position of the butcher, owing to general legislation, or rather the absence of it, on the subject of tuberculosis, is at the present time an unhappy one, and may be briefly interpreted thus : He goes to the cattle market and purchases from the farmer or cattle salesman what in the majority of cases appear to him to be good quality fat, healthy bullocks and heifers, and yet, very commonly, within a few hours afterwards, on having one of the animals slaughtered, finds it to be affected with tuberculosis. Such carcasses are then destroyed, and the butchers have to bear the entire loss.

“As tuberculous meat ought never to be admitted as being fit for food, and owing to the scattered distribution of slaughterhouses (in the

absence of public abattoirs) interfering with complete inspection, and the fact that no inspection whatever obtains in many districts, the time has arrived when, in the interests of public health, legislation should provide for :

- (1) The gradual eradication of the disease from the herds of this country.
- (2) The payment equally by farmers and butchers of a small fee per head of cattle (excluding cows and old or emaciated animals) purchased and slaughtered immediately for food purposes only, as insurance against the disease, and the balance of all losses to be compensated for out of the public purse.
- (3) The method of insurance to be controlled by the State.

“ *Boneless Meat and Imported Tripe.* Large quantities of boneless meat, from which the glands, parts of the fat, &c., have been removed, arrive daily from America into this and other cities of this country. Meat arriving in this condition defies inspection, consequently it is quite possible and very probable that in many cases such meat is cut from tuberculous carcasses from which the diseased glands have been removed ; therefore, as a safeguard against disease, meat should be allowed to arrive in this country only in the form of whole carcasses, accompanied by the lungs, liver, and other important organs, and subjected to inspection at the several ports of arrival.

“ Large quantities of tripe have been condemned and destroyed as being unfit for food, owing to the presence of excessive amounts of boron preservatives. Samples of the condemned tripe taken to the public analyst of this city were found on analysis to contain an average of $138\frac{1}{4}$ grains of boric acid to each pound of tripe. One sample contained at the rate of $220\frac{1}{2}$ grains of boric acid per pound of tripe.

“ A public notice, warning butchers and others against purchasing, or being in possession for purpose of sale, of such tripe, imported from Chicago and other parts of America, was issued in the daily press, and a circular letter, of which a copy is given below, was also sent out to butchers and tripe-dealers. These have had the desired effect.

CITY AND COUNTY OF NEWCASTLE-ON-TYNE TO BUTCHERS AND TRIPE-DEALERS

PRESERVATIVES IN TRIPE

“ The Sanitary Authority for the City and County of Newcastle-on-Tyne hereby give notice to all persons interested in the sale of Tripe, that large consignments of Tripe containing a greatly excessive quantity of boron preservatives have been recently seized in the City and condemned ; that such Tripe is still coming into the City from the United States and other places in large quantities, and that legal proceedings will be taken against any person found selling such Tripe or having the same in possession for sale.

"The principal characteristics of such Tripe denoting the presence of excessive amounts of preservatives are: brittleness, bitterness to the taste, and sometimes sliminess to the touch; and occasionally the Tripe is reduced to a jelly-like substance.

"By Order,
"HILL MOTUM,
"Town Clerk.

"TOWN HALL, NEWCASTLE-ON-TYNE,
"July 3, 1907.

"*Fat of Tuberculous Carcasses.* Butchers at one time used to send the fat of carcasses (which had been condemned for tuberculosis), mixed with other fat, to the tallow merchants to be sold. As the diseased fat then commonly found its way into the hands of fish and potato chip vendors, who used it exclusively for cooking purposes, the practice of sending it to the tallow merchants has been considered a dangerous one, and has therefore been prohibited altogether.

"The diseased fat now is thoroughly sterilised first and is afterwards used in the manufacture of soap.

"The wholesale meat shops, sausage factories, fruit, fish, provision and meat markets, and slaughterhouses have been visited and inspected as often and regularly as practicable.

"There are one hundred and thirty-two slaughterhouses within the City and County of Newcastle-on-Tyne, four of which are vacant. They are arranged in five groups, situate at Byker, Stepney, Benwell, Scotswood Road, and Dispensary Lane, with the exception of twenty private slaughterhouses which are scattered over various parts of the city and outskirts.

"One of the greatest obstructions to the inspection of meat at the present time in this city is, without any doubt whatever, the scattered distribution of the slaughterhouses.

"Another condition which unfortunately prevails in the majority of slaughterhouses at the present time is the lack of space in the interior. This seriously interferes with cleanliness during the process of slaughtering, and the carcasses in most cases being hung close to the walls, where in most instances no windows are present, adds yet another obstacle to inspection. The overcrowding in such buildings is well nigh impossible to avoid.

"On several occasions letters of caution have been sent to butchers for not causing their slaughterhouses to be properly cleansed after slaughtering, and in each case the result has been satisfactory, the premises being properly cleansed as required.

"*Prosecutions.* Five persons have each been fined £5 and costs for depositing diseased meat for the purpose of sale, whilst one person was fined £10 and costs for causing the deposit for sale of a most extensively diseased carcase of a cow, which had been most skilfully and artfully stripped and prepared with the object of hiding disease.

TABLE No. 6. THE FOLLOWING CARCASSES, &C., HAVE BEEN DESTROYED AS BEING UNFIT FOR HUMAN CONSUMPTION, DURING NINE MONTHS ENDING DECEMBER R31, 1907

	Carcasses.				Plucks.	Lungs.	Hearts.	Livers.	Kidneys, lb.	Sweet-breads, cases.	Ox Heads.	Sheep Heads.	Ox Tails.	Tripe, lb.	Sausage, lb.
	Beef.	Veal.	Mutton.	Pork.											
Tuberculosis	62½	4	—	4	5	41	41	41	—	—	41	—	—	—	—
Braxy	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—
Actinomycosis	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—
Anthrax	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Swine erysipelas	—	—	—	19	—	—	—	—	—	—	—	—	—	—	—
„ (swine urticaria)	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—
Septicæmia	1	—	1	2	—	—	—	—	—	—	—	—	—	—	—
Jaundice	—	—	—	—	—	—	—	22 lb.	—	—	—	—	—	—	—
Pyæmia	—	—	2	—	—	—	—	12 lb.	—	—	—	—	—	—	—
Abscesses	—	—	½	14 lb.	—	—	—	—	—	—	—	—	—	—	—
Emaciation	2	—	15	1	—	—	—	—	—	—	—	—	—	—	—
Dropsy	¾	2	6	1	—	—	—	—	—	—	—	—	—	—	—
Rachitis	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—
<i>Parasitical diseases:</i>															
Echinococcus disease	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—
Cysticercus cellulosæ (measles)	—	—	—	1	2	—	—	—	—	—	—	—	—	—	—
Strongylus paradoxus	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—
Pneumonia	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pericarditis and myocarditis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pleurisy	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—
Peritonitis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pyelo-nephritis	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Angioma	—	—	13	11	—	—	—	11 lb.	—	—	—	—	—	—	—
Natural death	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—
Imperfect bleeding	—	4	4	1	—	—	—	—	—	—	—	—	—	—	—
Fœtal flesh	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—
Asphyxia	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Decomposition	7½	56	18½	20	159	1	96	237 lb.	460	2	2	77	154	800	12
Traumatism	3½	—	3	—	—	—	—	—	—	—	—	—	—	—	—
Pyrexia	—	—	—	6	—	—	—	—	—	—	—	—	—	2632	—
Preservatives	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	83½	73	67	71+14 lb.	167	43	137	282+41 lb.	460	2	44	77	154	3432	12

TABLE No. 7. PROVISIONS, FISH, &C., DESTROYED AS BEING UNFIT FOR HUMAN CONSUMPTION, DURING
NINE MONTHS ENDING DECEMBER 31, 1907

	Provisions.	Poultry.	Game.	Fish.				Fruit.					Vegetables.	
				Shelled.	Unshelled.			Figs.	Rasps.	Black- currants.	Plums.	Cocoa Nuts.	Cabbages.	Cauli- flowers.
				Prawns.	Kippered Herrings.	Findon Haddocks.	Trout.							
	Eggs.	Ducks.	Rabbits.											
Decomposition	1490	16	114	28 stones.	70 boxes and 76 stones.	17 boxes	—	2 boxes	14 baskets	30 lb.	14 baskets	30 bags	20 crates	30 dozen
Unclean	—	—	—	—	—	—	270 lb.							

"The following is a return of the provisions, &c., destroyed as being unfit for food, and in connection with outbreaks of disease and prosecutions, &c., during January, February, and March 1907, previous to my commencing office :

15	Carcases of Beef,	11 affected with Tuberculosis.
2	"	Veal.
12	"	Mutton.
20	"	Pork, 4 affected with Tuberculosis and several affected with Swine Fever.

2 sets ox lungs, 1 ox liver, 30 ox tails, 18 lb. ox kidney, 300 lb. American tripe, 90 couple rabbits, 6 stones mussels and 8 geese.

"The owner of the geese was fined £5 and costs for having them deposited for sale.

"Four outbreaks of swine fever occurred within the first 3 months of 1907 in Byker and Walker districts, and were dealt with by the Board of Agriculture. One pig owner was fined £20 and costs for failing to report the existence of disease on his premises.

"Five butchers at Walker were fined 5s. and costs each for slaughtering on unlicensed premises.

"The sides of beef examined were imported from Denmark. Two of these, found to be affected with tuberculosis, were destroyed with the consent of the consignee. Three persons have been summoned for being the owners of diseased or unsound meat, exposed or deposited for the purpose of sale. One was fined £10 and costs, and another £5 and costs. One case was dismissed. One person was summoned for having sold sixty-one boxes of tomatoes, which were in such a condition as to be liable to be seized and were unfit for food at the time of sale. He was fined £5 and costs (*see also* Tables on pp. 1158 and 1159).

"(Signed) WM. HEDLEY, *Inspector*."

Newcastle Cattle Market. The cattle market at Newcastle, which is said to be the largest in the United Kingdom, was established about the year 1830, in order to form a central depot for the live-stock of the North of England. Before 1830, the market was held at Morpeth, but it was found desirable to shift it from that centre to the more populous district of Newcastle-on-Tyne. Since 1830, the market has been greatly extended, until it now occupies a greater area than any other live-stock market in the United Kingdom. The customs which obtain in the market have been described by a local authority * as follows :

"I may explain that all stock is bought and sold in Newcastle market by private treaty. It is well known that the introduction of auction marts, about thirty years ago, had a serious effect upon our statutory fairs, at which little business is done in comparison with what there was transacted at these gatherings in former years. But Newcastle cattle market has not, I venture to say, suffered to any appreciable degree, if at all, by the change.

* *Newcastle Cattle Market, History and Development*, Adam Tindall, *Proceedings of Armstrong College Agricultural Students' Association*, 1908-9, Vol. II. Pt. I.

“Cattle, sheep, calves, and pigs, sold here, are subjected to the following tolls:

“ Bulls	6 <i>d.</i> per head
Fat Cattle	4 <i>d.</i> „
Horses	6 <i>d.</i> „ (on Tuesdays)
Pigs	1 <i>d.</i> „
Sheep	1 <i>s.</i> per score

TABLE VII. RETURN OF SUSPECTED AND UNWHOLESOME PROVISIONS INSPECTED DURING THE YEAR 1901

Provisions inspected.	Amount of suspected provisions inspected.	Condition.		Bad—how disposed of.	
		Fit for food.	Unfit for food.	Destroyed by order of justice.	Destroyed with owner's consent.
Carcases of beef	137	61	76	5	71
Sides of beef	398	396	2	—	2
Quarters of beef	30	16	14	—	14
Carcases of veal	52	25	27	—	27
„ mutton	123	47	76	—	76
„ pork	182	122	60	—	60
Pieces of beef, mutton (lb.)	664	—	664	—	664
Pieces of pork (lb.) . . .	160	—	160	—	160
Sausage-meat (lb.) . . .	480	—	480	—	480
Ox heads	4	—	4	—	4
„ kidneys (lb.)	833	—	833	—	833
„ livers (lb.)	408	—	408	—	408
„ tripe (lb.)	1,430	—	1,430	—	1,430
„ sweetbreads (lb.) . . .	50	—	50	—	50
„ tails (lb.)	84	—	84	—	84
Sheep plucks	72	—	72	—	72
Pig plucks	49	—	49	—	49
„ kidneys (lb.)	72	—	72	—	72
Rabbits (couples)	304	—	304	—	304
Turkeys	6	—	6	—	6
Geese	17	—	17	—	17
Ducks	79	—	79	—	79
Chickens	51	—	51	—	51
Pears (barrels)	82	—	82	—	82
„ (baskets)	6	—	6	—	6
Cherries (baskets)	160	—	160	—	160
Plums (baskets)	364	—	364	—	364
Bilberries (baskets) . . .	5	—	5	—	5
Tomatoes (boxes)	61	—	61	61	—

“ 1905. INSPECTOR'S REPORT (ANNUAL) TO M.O.H.

“ TABLE VIII. RETURN OF SUSPECTED AND UNWHOLESOME PROVISIONS
INSPECTED DURING THE YEAR 1905

Provisions inspected.	Amount of sus- pected provi- sions in- spected.	Condition.		Bad—how dis- posed of.	
		Fit for food.	Unfit for food.	Destroyed by order of justices.	Destroyed with owner's consent.
Carcases of beef . . .	148	71	77	2	75
Quarters of beef . . .	1,811	440	1,371	—	1,371
Carcases of veal . . .	63	27	36	—	36
„ mutton . . .	8,130	789	7,341	—	7,341
„ pork . . .	101	37	64	—	64
Pieces of beef (lb.) . . .	5,079	3,472	1,607	—	1,607
„ veal (lb.) . . .	90	—	90	—	90
„ mutton (lb.) . . .	42,456	22,238	20,218	—	20,218
„ pork (lb.) . . .	101	—	101	—	101
Ox heads . . .	5	—	5	—	5
„ cheeks (lb.) . . .	10,000	200	9,800	—	9,800
„ skirts (lb.) . . .	10,000	1,600	8,400	—	8,400
„ tongues (lb.) . . .	3,000	1,860	1,140	—	1,140
„ kidneys (lb.) . . .	3,731	500	3,231	—	3,231
„ hearts (lb.) . . .	2,500	50	2,450	—	2,450
„ livers (lb.) . . .	2,249	—	2,249	—	2,249
„ tails (lb.) . . .	3,688	35	3,653	—	3,653
„ tripe (lb.) . . .	4,340	—	4,340	—	4,340
Sheep and pig hearts (lb.)	5,085	700	4,385	—	4,385
„ „ kidneys „	592	—	592	—	592
„ „ plucks . . .	390	—	390	—	390
Sheep tongues (lb.) . . .	2,500	50	2,450	—	2,450
Turkeys . . .	18	—	18	—	18
Geese . . .	20	—	20	—	20
Ducks . . .	6	—	6	—	6
Chickens . . .	3	—	3	—	3
Hares . . .	16	—	16	—	16
Rabbits (couples) . . .	80	—	80	—	80
Black game (brace) . . .	33 $\frac{1}{2}$	—	33 $\frac{1}{2}$	—	33 $\frac{1}{2}$
Rooks (dozen) . . .	20	—	20	—	20
Eggs . . .	1,440	—	1,440	—	1,440
Apples (stones) . . .	10	—	10	—	10
Black-currants (baskets) .	224	—	224	—	224
Cauliflowers (cwt.) . . .	15	—	15	—	15
Yeast (stones) . . .	12	—	12	—	12

“ WM. HEDLEY, *Inspector.*”

"When the regulations of 1860 came into force the charges were as follows :

"For every fat bull	6d.
fat cattle, per head	3d.
store cattle „	1d.
every horse „	6d.
every pig „	1d.
every score of sheep and lambs	1s.

"On store cattle now, toll is paid only at the cow hill fair. The list was revised several years ago.

"There has been from the first a rather curious custom in vogue in connection with the Newcastle cattle market in common with other similar gatherings. I allude to the custom of returning 'luck money' by the vendor to the purchaser. This represents one shilling per head in dealing with cattle, and one shilling per score where sheep are concerned.

"Formerly, when the coin of the realm, and not the modern bank cheque, changed hands in the buying and selling of live-stock, the 'luck money' appears to have, to a certain extent, at least, served the purpose of a receipt, just as a cheque does now."

CITY AND COUNTY OF NEWCASTLE-ON-TYNE

OUTLINE OF DUTIES OF VETERINARY OFFICER

DISEASES OF ANIMALS ACTS

Cattle Lairs. There are twenty, situate mostly at West End. Inspected certain days each week.

Licensed Pig Lairs. Situate in various parts of the city, and inspected several days each week.

Railway Cattle Docks. Inspected each week several times.

Horse and Cattle Fairs. Town Moor, Cattle Market, Railway Street. Inspection of animals at these fairs, held certain days in each year.

Cattle, Sheep, and Pig Markets. Inspection each Tuesday from 6 A.M. Cattle market, Mondays, Tuesdays, and Saturdays. One inspector is in attendance to grant licences for moving swine (Swine Fever Orders).

Town Hall Office. Licences are granted from time to time for movement of swine under the Special Newcastle (Swine Fever) Orders.

Duplicate Licences regarding swine coming to city from certain areas have to be verified.

Requests are frequently received to investigate suspicious cases of illness or death of cattle, swine, &c. In many cases, post-mortem examinations have to be made to determine the nature of disease. Where contagious (scheduled) disease exists, immediate attention must be given to the putting into operation of orders (anthrax, swine fever, &c.), necessary disinfection and other details.

Quayside. Under the Exportation of Horses Order, old and infirm horses prior to being shipped require inspection, likewise the food and vessels.

DAIRIES, COWSHEDS, AND MILKSHOPS ORDER

There are forty-four registered cowsheds over an area from Scotswood to Grandstand (near Gosforth) and nearly to Wallsend. These require regular inspection from time to time, not less than once monthly.

There are some 540 milch cows in these sheds which are being sold, removed, and replaced from time to time. These should be examined by the veterinary officer for disease not less than once monthly. During winter, three days weekly devoted to this work alone would be required, but in summer, when cows are kept outdoors, nearly every day would be necessary to be devoted to this branch of veterinary science.

Inspection of Cattle on the Town Moor. Besides milch cows, other cattle are grazed on the Moor, and require inspection from time to time.

MEAT INSPECTION

Slaughterhouses (Public and Private). There are considerably over a hundred, scattered widely over the city. These have to be inspected regularly as to cleanliness, &c. The process of slaughtering requires supervision also.

Meat (Cattle, Sheep, Calves, and Swine). Almost daily inspection during slaughtering process in the various slaughterhouses—incomplete owing to very wide distribution of slaughterhouses.

Wholesale foreign meat shops in the city are visited regularly, also Tindall's auction (meat) mart, Carter's wholesale English meat establishment, sausage factories, pork butchers' workshops in various parts of the city, and the central meat market. Inspection of carcasses by request of owners is carried out from time to time in the city.

INSPECTION OF MEAT ARRIVING AT QUAYSIDE—FOREIGN MEAT REGULATIONS

INSPECTION OF FISH

Inspection every morning at the Fish Market, Close. The Fish Market in Clayton Street is visited as regularly as possible, also various fish and chip saloons, oyster-bars, mussel stalls in markets and streets, hawkers, herring carts and frequent inspection of fish arriving at the Fish Quay, Central Station, is carried out.

FRUIT, PROVISIONS, POULTRY, GAME, &c.

Regular inspection at central markets, fruit markets, various stalls, wholesale dealers' stores, and of fruit arriving on Quayside, fruit stalls, hawkers, &c.

DISPOSAL OF CONDEMNED CARCASSES, &c.

To be arranged for on certain days each week, and in special cases where destroyed by Magistrate's Order after seizure or on account of contagious disease. Involves extra time and the whole attention of one of the inspectors during the process.

BRADFORD

Dr. W. Arnold Evans, M.O.H. for the city of Bradford, has been kind enough to supply the following facts with regard to meat inspection in that city. "There are two municipal slaughterhouses and forty-seven private slaughterhouses. There are two meat inspectors who devote the whole of their time to the work. The standard in regard to tuberculosis is the recommendation of the Royal Commission; in other matters the opinion of the inspector or M.O.H. is considered final. The M.O.H. is responsible for condemning meat. Condemned carcasses are destroyed by burning in a destructor." The following particulars of animals or carcasses seized or surrendered are from the report for 1908.

Particulars of seizures :

Carcase of cow and internal organs	. 140 lb.	} Cwt. Qr. Lb.
" " " "	. 450 "	
Boned beef . . . . .	. 200 "	
		7 0 6

Legal proceedings were taken against four persons.

Particulars relating to the surrendered carcasses :

Carcasses affected with localised disease and partially con- demned.	Carcasses wholly condemned.	Cows . . .	70	} =	Weight in lb.				
		Heifers . . .	3		Beef . . .	38,964			
		Bullocks . . .	3		Veal . . .	3,150			
		Calves . . .	55		Pork . . .	14,952			
		Pigs . . .	89		Mutton . . .	4,623			
		Sheep . . .	73		Offals . . .	17,412			
		Cows . . .	419						
		Heifers . . .	91						
		Bullocks . . .	22						
		Calves . . .	16						
Carcasses affected with localised disease and partially con- demned.	Carcasses wholly condemned.	Pigs . . .	157	} =	Total	Tons. 35	Cwt. 6	Qr. 1	Lb. 1
		Sheep . . .	67						

SUMMARY OF DISEASES OR CONDITIONS WHICH RENDERED THE CARCASSES UNFIT FOR HUMAN FOOD

Actinomycosis	Emaciation	Peritonitis
Anthrax	Hydatid diseases	Pleurisy
Choked	Inflammation	Smothered
Cirrhosis	Injured	Tuberculosis
Dropsy	Jaundice	Unmarketable.

SHEFFIELD

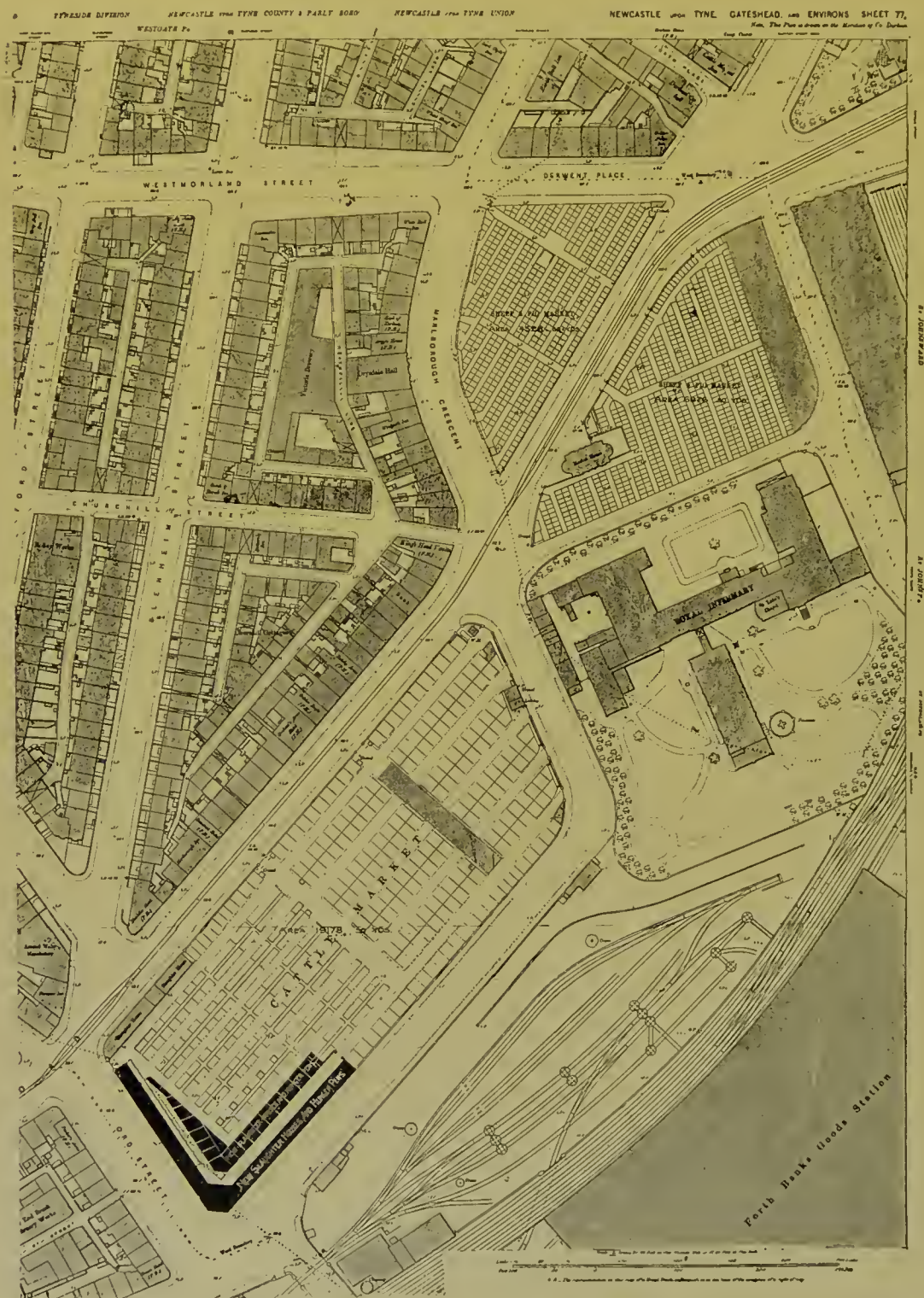
This very important centre of population is an excellent example of the extreme difficulty which confronts the authorities of to-day in any effort they may make to bring the resources of modern science to bear upon the old existing arrangements.

The problem in Sheffield which confronts Mr. Lloyd, and those who act with him in the matter of meat inspection, is an extremely difficult one. The difficulty takes its origin in the history and development of the town itself, which has grown to its present tremendous dimensions by the gradual inclusion of a number of formerly distinct and separate villages scattered here and there along the valleys and on the hills. One by one these have been joined together as the intervening spaces became occupied with buildings, and the incorporation of the outlying ones has gone on and on until we have the present large area extending in one direction a distance of almost thirteen miles. The original arrangements for the slaughtering of cattle, of course, demanded that in each small centre, there was at least one slaughterhouse, and in many of them more than one and the result of the fusion of all these separate centres of population into one immense city has been that a large number of different places have survived to the present day in which slaughtering is carried on.

Licensed Slaughterhouses. As a matter of fact, at the present moment there are no fewer than 183 licensed slaughterhouses in the City of Sheffield. How anything like a satisfactory inspection of this tremendous number, all centres, can be carried out, is indeed a difficult problem. In addition to the chief veterinary inspector, there are also an assistant veterinary inspector, and two other food inspectors who are not veterinary surgeons, and the systematic examination in visiting all the centres of slaughtering devolves upon these four officials. As in so many other places in Great Britain it is the severity of the law as regards the sale of meat which is unfit for human consumption that prevents a worse condition of affairs. What actually happens is that whenever any carcase is observed to be diseased or abnormal in any way the person in charge of the slaughterhouse, that is to say the representative of the butcher, sends a message to the office of the chief veterinary inspector, who thereupon proceeds to the spot and examines the carcase. This, indeed, is the only way in which anything like adequate precautions could be taken for the safety of the public where the number of slaughterhouses reach such a figure as they do in Sheffield. There is no central slaughtering place except the old shambles, which are anything but up to date in their arrangements, and in the opinion of the chief inspector the geographical situation and arrangement of the city is such that it would be extremely difficult to supply the needs of the local community from any one central slaughterhouse. He is of opinion that at least three would be required chiefly on account of the peculiar shape of the town, the extreme ends of which are such a great distance apart.

There is practically no cattle market within the city, the cattle all

being bought at varying distances by the respective butchers and brought to Sheffield for slaughter in their own houses. This city is one of the most striking examples of the difficulty of applying modern scientific principles to ancient existing arrangements, and as we see the problem is one which during the next twenty years will require all the energy and skill of those into whose hands it is committed.



NEWCASTLE-ON-TYNE STOCK MARKETS
Covering a total area of 11,504 square yards,
thus being the largest in the United Kingdom.

CHAPTER IV
MEAT INSPECTION IN BRITISH CENTRES
(CONTINUED)

HULL, BOLTON, WIGAN, ST. HELENS, STOCKPORT, CHESTER, NOTTINGHAM,
CARDIFF, NEWPORT, BRISTOL, HEREFORD, EXETER, NORWICH,
SOUTHAMPTON, READING, AND DOVER (EAST KENT)

HULL

WHILE the problems which the meat inspector has to deal with are very similar pathologically in all inland centres, they are extremely different from those which confront him should his lot happen to be cast in a large seaport such as Hull. There the meat inspector's duties are such that they would almost require to be learnt on the spot by any one whose intention it was to occupy the position of a meat inspector in a seaport. Indeed, one might go further and say that it would be almost essential that the meat inspector should be trained in the duties of the particular port to which he was to be appointed, because the ports on the one coast differ immensely from those of the other as to the nature of the imports which call for the attention of the inspector. In one place his duty might be chiefly the examination and inspection of frozen or chilled meat from distant parts of the world, or of cattle themselves from, perhaps, Canada. However expert he may be in the judging of the different conditions found in what is usually known as the frozen meat trade, he might be, and probably would be, absolutely at a loss if suddenly called upon to give information on some of the imported food materials, such as may be seen in the docks at Hull coming from Holland and adjacent countries.

Imported Lungs, Livers, and Hearts. It would probably be a surprise to him to find—as it was to the writer—immense numbers of boxes and casks being deposited on the landing-stage from steamers from Holland, these boxes containing nothing but lungs, livers, hearts, and heads of animals all intended for consumption in this country. In order that they may travel in as fresh a condition as possible these organs are packed with lumps of ice amongst them, the result of which is to produce extremely curious changes in the colourings of the tissues where they have been lying for hours in actual contact with the lumps of ice. These changes are particularly noticeable in the livers, which would most certainly be seized and condemned by an inexperienced inspector as being either fatty or waxy or in some other morbid condition. As a matter of fact, a few hours after they have been unpacked and exposed

to air and hung up they recover their normal appearance. An imported "pluck" of this description is sold in this country for about a couple of shillings, and the number which comes in in this way is extraordinary.

Problems that Trouble the Inspector. We may cite another example of a pit-fall into which the uninitiated inspector may easily fall. It is not always good weather between Holland and our east coast ports, and the cargo is not always particularly well protected from the weather. It is no uncommon thing to find the carcasses packed upon the decks or in other places in which they are exposed to the salt water which breaks over the boat. When such carcasses are landed and hung up on shore in a meat shop or store, sodden from the constant wetting that they have been exposed to on the voyage, they at first sight might readily be mistaken for dropsical conditions or other serous effusions which would lead to their condemnation. Here again, however, the condition is quite temporary and the carcase soon assumes its normal aspect. This is only one of many examples which could be given showing the necessity for learning the work of seaport meat inspection at the port itself, after, of course, a competent pathological training at a veterinary school.

Few places are more interesting to the student of meat inspection than is Hull, and this is on account of the great variety of work with which the meat inspector has to deal. There is, in addition to the ordinary slaughtering of home-bred animals, a very large frozen meat import trade, with extensive chill-rooms in which the carcasses are stored by the thousand, and, in addition, there is the Continental import trade of mutton and pork as well as of the "offal" above described, and, in addition, the fish market. All these are handled by the chief veterinary inspector, Mr. McPhail and his assistants, to whom we are indebted for much information.

Kingston-upon-Hull. Owing to the fact that Hull is a seaport to which a large amount of foreign meat-stuffs is sent, the Meat Industry there presents some very interesting features peculiar to similar places. The M.O.H. of Hull, Dr. J. Wright Mason, has been kind enough to furnish the following particulars of the staff, &c., and some paragraphs are quoted from his reports for 1908 and 1909. He writes: "Since the Public Health (Regulations as to Food) Act came into operation, the duties under the Regulations made under the Act have been relegated to the staff of our food inspection department, which staff is as follows: Chief Food Inspector (Veterinary), salary £400 from city and £50 from port; one assistant, salary £150 from city and £5 from port; one assistant, salary £135 paid by city authority; one assistant, salary £125 paid by city authority; one assistant, salary £110 paid by city authority. Two of the assistants hold the certificate of the Royal Sanitary Institute, and also its special certificate for the inspection of meat and other foods. Another has acted as fish and game inspector for a number of years, and one recently appointed and who is a certified sanitary inspector, is also required to obtain the Royal Sanitary Institute's special certificate for the inspection of meat and other foods.

There are sixty-one private slaughterhouses in the city. Efforts have been made to establish a public abattoir, but owing to strong opposition, the Parliamentary Bill containing the necessary clause had to be withdrawn."

Food Inspection. The system of food inspection in Hull has been carried out during the past year by Mr. James McPhail, M.R.C.V.S., &c., Chief Foods Inspector, with four assistants, whose duties include meat inspection, fish and fruit inspection, cowsheds and dairies, and cows therein also, and inspection of all retail shops in the city. A clerk has also been appointed for office work. The following is the report of work done :

SUMMARY OF SEIZURES DURING THE YEAR

	Lb.
" Beef	127,014½
Mutton	13,642
Pork	21,608
Veal	4,942
Fruit	225,922
Vegetables	76,279
Fish	1,156,684
Poultry, game, &c.	7,899½
	<hr/>
	1,633,991
	<hr/>

"The following tabulated statement shows the number of carcasses, &c., seized during the year :

	Beast.	Sheep.	Pigs.	Calves.	Total.
" Number of carcasses .	113½	107¼	147¾	81½	450

" *Tuberculosis.* The inspection of carcasses affected with this disease has been carried out upon the basis of the recommendation of the Royal Commission on Tuberculosis.

"Number of seizures of animals affected with tuberculosis :

" Cows	49½
Heifers	14¾
Bullocks	17¼
Bulls	1
Calves	2
Pigs	93
	<hr/>
Total	177½
	<hr/>

" *Bacteriology*

"Negative results 107

Positive results :

<i>c.g.</i> Tubercle	18	} . 30
Organisms of suppuration	11	
Pyæmia	1	
	<hr/>	
Total	30	
	<hr/>	

Total 137"

"CAUSE OF SEIZURE OF CARCASSES, JANUARY 1 TO DECEMBER 31, 1907

No. of Beast.	Description.	Cause of Seizure.	No. of Sheep.	Cause of Seizure.	No. of Figs.	Cause of Seizure.	No. of Calves.	Cause of Seizure.
47½	Cows	Tuberculosis	18	Parturient Asphyxia	93	Tuberculosis	2	Tuberculosis
2	Live cows	"	7	"	19	Liver disease and dropsy	24	Emaciation
14½	Heifers	"	5 lambs	"	6	Liver disease and jaundice	18	Unmarketable Decomposition
17½	Bullocks	"	12½	"	3	Enteritis	11½	Enteritis
1	Bull	"	12½	"	3	Rheumatoid arthritis	5	Pleurisy and pneu- monia
2½	Bullocks	Bone taint	1 lamb	"	3	Acute gastric enter- itis	3	Phrenitis
2	Cows	Septic pneumonia	6	Emaciation	3	Nephritis and jaun- dice	2	Joint Ill
3	"	Parturient Traumatism	8	"	2	Pyæmia	1	Jaundice
2½	"	"	5	"	2	Malignant œdema	2	Peritonitis
1	Bullock	"	4	Pleurisy	2	Rheumatoid arthritis	1	Omphalitis
1	Heifer	"	2½	"	2	Emphyema	1	Dropsy and decom- position
1	Cow	Gangrene	2	"	2	Immature Enteritis and perito- nitis	1	Arthritis
1	Bullock	"	4	"	1	Lymphadenoma	1	Abscesses
1	Cow	Enaciation	2 lambs	"	1	Pneumonia and de- composition	1	Malignant œdema
1	Heifer	Septicæmia	2	"	1	Gastritis and pyrexia	1	Diseased kidneys and dropsy
3	"	"	1	"	1	Septic mammitis	1	Tuberculous pleurisy
1	Cow	"	1	"	1	Jaundice	1	Pleurisy & jaundice
1	Bull	"	1	"	1	Traumatism	1	Septic arthritis
1	Heifer	Decomposition	1	"	1	Gangrene	1	Traumatism and de- composition
1	Bullock	Symptomatic anthrax	1	"	1	Myositis	1	Pleurisy & nephritis
1	Cow	Pneumonia	1	"	1	Mastitis	1	
1	Heifer	"	1	"	1	Gastritis	1	
1	Cow	Rheumatic arthritis and pyrexia	1½	"	1	Acute pneumonia	1	
1	Bullock	Septic pericarditis and thrombosis	1	"	1	Rickets	1	
1	Heifer	Septic peritonitis	1	"	1	Mummified	1	
1	Bullock	Cirrhosis & anasarca	1	"	1	Traumatic pyrexia	1	
1	"	Melanotic sarcoma and melanosis	1	"	1	Peritoneal abscess	1	
1	"	Actinomycosis	1 lamb	"	1	Arthritis	1	
1	"	Abscess	1	"	1	Ostitis	1	
1	"	Unmarketable through contamination	1	"	1		1	
1	"	Fistula of rectum	1	"	1		1	
113½	Cow		107½		147½		81½	

“TABLE SHOWING THE CAUSE OF SEIZURE AND THE RESULTS
OF LEGAL PROCEEDINGS, &C.

Date, 1907.	Description.	Cause of Seizure.	PROCEEDINGS.		RESULTS.
			Reported to Sanitary Committee.	Referred to Town Clerk.	
Feb. 4.	2 cases rabbits .	Decomposition .	I	I	Summons dismissed
„ 7.	Pig and pluck .	Tuberculosis .	I	I	Fined £5, including costs, or 30 days' imprisonment.
Apl. 13.	148 lb. pork and offal .	„ .	I	I	Fined £5, including costs, or 30 days' imprisonment.
May 6.	2 live cows .	„ .	I	I	No action taken.
Aug. 9.	Pig and offal .	„ .	I	I	Fined £10, including costs, or 2 months' imprisonment.
Sept. 20.	33 lb. beef and 7 lb. mutton .	Decomposition .	I	I	Cautioned before Sanitary Committee.
Oct. 7,8.	Ox lungs, head, and 4 lb. beef .	Tuberculosis .	I	I	Cautioned before Sanitary Committee.
Nov. 23.	Pig	„ .	I	I	Fined £3, including costs.
„ 30.	Fore-quarter of an ox	„ .	I	I	Report sent to the President of Local Government Board

“NOTE. In addition to the above, thirty-eight lots of meat or offal were seized in illegal possession, and the owners were warned by the visiting inspector, or by letter, and nine destruction orders were also obtained, but no further action was taken.

“GAME, &C.

	Lb.
“ Rabbits	5,259
Fowls	869
Hares	240
Black game	104
Pigeons	10
Partridges	25
Grouse	216½
Ptarmigan	358
Pheasants	4

" GAME, &c. (*continued*)

	Lb.
Capercaillie	138
Ducks	107
Goose giblets	16
Snipe	1
Quails	20
Curd	532
Total	<u>7,899½</u>

" FISH, &c.

	Lb.
" Herrings	993,588
Mussels	9,632
Haddocks	43,498
Codfish	36,707
Catfish	7,102
Kippers and dry fish	168
Bream	420
Halibut	5,111
Fish-roes	1,806
Shrimps and prawns	3,292
Salmon and trout	1,307
Winkles	640
Skate and rays	2,850
Crabs	10
Plaice	29,527
Dabs	1,176
Mackerel	1,126
Cockles	8,680
Ling	2,102
Sprats	140
Megerams and witches	168
Red mullet	56
Gurnets	4,000
Smelts	372
Coalfish	112
Two cases of sardines	50
Hake	580
Bergild	2,240
Oysters	224
Total	<u>1,156,684</u>

Total : 516 tons 7 cwt. 2 qr. 4 lb.*

* The great variety of items in this and similar Tables quoted in this volume is sufficient indication of the necessity of systematised instruction on the subject. **AUTHORS.**

“ PREMISES INSPECTED, 1907

	Inspections.
“ Slaughterhouses	4,762
Butchers' and provision shops and meat factories	794
Cowsheds and dairies	688
Fish shops and stalls	837
Fish-curing houses	319
Fruit shops and warehouses	1,595
Fruit markets	245
Game warehouses	1,133
Victoria Pier	191
Fruit steamers	514
Total	<u>11,078</u> ”

Food Inspection. The Chief Foods Inspector reports that the following Carcases, Meat, Offal, Fruit, Fish, Game, &c., have been seized during the four weeks ended October 30, 1909:

Date.	Description.	Cause of seizure.
“ Oct. 8 .	1 cow carcase	† Tuberculosis
„ 12 .	1 „ „	* Septic metritis
„ 14 .	1 ox „	* Tuberculosis
„ 14 .	$\frac{1}{4}$ „ „	* „
„ 14 .	$\frac{1}{2}$ cow „	* „
„ 15 .	$\frac{1}{4}$ ox „ (foreign)	Purpura hæmorrhagica
„ 25 .	$\frac{1}{4}$ „ „	* Tuberculosis
„ 29 .	$\frac{1}{2}$ cow „	† „
„ 5 .	1 lamb „	† Traumatism
„ 5 .	1 sheep „	* Nephritis
„ 6 .	1 „ „	* Uremia
„ 7 .	1 „ „	* Enteritis
„ 30 .	1 lamb „	‡ Purpura hæmorrhagica
„ 30 .	1 sheep „	‡ Enteritis
„ 6 .	1 pig „	* Tuberculosis
„ 13 .	1 „ „	* „
„ 15 .	1 „ „	* „
„ 27 .	1 „ „	* „
„ 28 .	1 „ „	* „
„ 11 .	1 calf „	* Immature
„ 12 .	1 „ „	* „
„ 13 .	1 „ „	* „
„ 14 .	1 „ „	* „
„ 27 .	1 „ „	* Phrenitis

“ Beasts, $4\frac{3}{4}$; sheep, 6 ; pigs, 5 ; calves, 5 ; total carcases, $20\frac{3}{4}$.”

* Purchased and dressed in Hull.

† Consigned from the country and dressed in Hull.

‡ Carcases consigned for the country.

“TABLE SHOWING THE NUMBER OF ANIMALS LANDED AT THE CITADEL SITE DEPOT

Quarter ended.	Beast.	Calves.	Sheep.	Pigs.	Total.	Total landed dead.				
						Beast.	Calves.	Sheep.	Pigs.	Total.
1907.										
March 31	499	—	—	—	499	—	—	—	—	—
June 30	385	—	—	—	385	—	—	—	—	—
September 30	424	—	—	—	424	—	—	—	—	—
December 31	200	—	—	—	200	—	—	—	—	—
Total	1,508	—	—	—	1,508	—	—	—	—	—
Total, 1906	3,559	—	—	—	3,559	—	—	—	—	—
" 1905	3,240	—	—	—	3,240	—	—	—	—	—
" 1904	3,330	—	—	—	3,330	—	—	—	—	—
" 1903	3,551	—	783	—	4,334	—	—	—	—	—
" 1902	2,530	—	1,955	—	4,485	—	—	—	—	—
" 1901	8,895	—	5,860	—	14,755	—	—	4	—	4
" 1900	8,801	—	—	—	8,801	—	—	—	—	—
" 1899	9,140	—	—	—	9,140	—	—	—	—	—
" 1898	8,259	—	1,766	—	10,025	—	—	1	—	1
" 1897	8,827	—	—	—	8,827	—	—	—	—	—
" 1896	6,549	—	6,576	—	13,125	—	—	1	—	1
" 1895	2,631	—	1,366	—	3,997	—	—	3	—	3
" 1894	5,068	—	773	—	5,841	—	—	2	—	2
" 1893	2,497	—	—	—	2,497	1	—	—	—	1
" 1892	5,553	—	—	2,634	8,187	2	—	—	13	15
" 1891	4,939	5,816	86	—	10,835	4	13	—	—	17
" 1890	5,493	5,922	250	1,418	13,083	4	3	—	—	7
" 1889	3,891	5,204	16,837	20,921	46,853	2	—	3	—	24
" 1888	4,153	5,190	39,512	16,748	65,603			No return.	19	

Offal, &c. “Beasts : 5 sets of offal, 28 sets of lungs, 38½ livers, 6 heads, 5 spleens, 3 udders, 6 tongues, 17 sweetbreads, 6 hearts, 4 boxes kidneys. Sheep : 5 sets of offal, 5 sets of lungs, 7 livers, 8 heads, 2 kidneys, 13 plucks. Pigs : 5 sets of offal, 4 sets of lungs, 6 livers, 1 pluck. Calves : 1 set of offal ; 426 lb. of pieces of beef ; 22 lb. of pieces of mutton ; 3 lb. of pieces of pork.

Beef, 4851 lb. ; mutton, 607 lb. ; pork, 759 lb. ; veal, 233 lb. ; total meat, 6450 lb.

Note. In connection with the foregoing, 98 notifications for inspection were received from the butchers.”

Fish, Game, &c. “Eight thousand eight hundred and thirty-four lb. Haddocks, 7483 lb. ; plaice, 5180 lb. ; cockles, 4840 lb. ; codfish, 2800 lb. ; mackerel, 1382 lb. ; halibut, 630 lb. ; dabs, 462 lb. ; smelt, 448 lb. ; shrimps, 280 lb. ; skate, 280 lb. ; crabs, 140 lb. ; hake, 636 lb. ; rabbits. Total, 33,395 lb.”

BOLTON

Dr. J. E. Gould, M.O.H. for Bolton, gives the following information in his annual report for 1908. The slaughterhouses in the borough are fifty-three in number.

“During the past year the various animals, carcasses, &c., passing through the public abattoirs, private slaughterhouses, markets, and railway sidings have been carefully examined both before and after slaughter, and generally speaking the meat retailed in the borough has been of a high standard.

“A circular issued during the year to farmers, cattle dealers, and butchers containing regulations with regard to the slaughter and disposal of animals meeting with accidents or diseased, has had a very good effect in increasing the number of animals slaughtered under direct inspection at the public abattoirs.

“Regular and systematic inspections have been made during the year of the cattle sidings, meat and fish markets, fairs and all premises from which food is retailed.

“There has been no seizure of food during the year.

“The farmers, butchers, and dealers show a commendable willingness not only to surrender for destruction unsound food, but also to make known at this office that they have such on the premises.

“GENERAL INSPECTION

“Slaughterhouses and shops	.	.	.	.	2,127
Beasts . . . . .	.	.	.	.	6,946
Sheep and lambs . . . . .	.	.	.	.	25,396
Swine . . . . .	.	.	.	.	11,783
Calves . . . . .	.	.	.	.	1,358
Store cattle . . . . .	.	.	.	.	3,018
Farms . . . . .	.	.	.	.	182

"CARCASSES FOUND TO BE AFFECTED WITH DISEASE

No.	Disease.	Cows.	Bulls.	Heifers.	Bullocks.	Calves.	Sheep.	Pigs.	Carcases destroyed.	Parts of organs.
91	Tuberculosis.	78	3	7	2	—	—	1	51	40
9	Pneumonia .	9	—	—	—	—	—	—	9	—
4	Dropsy .	3	—	1	—	—	—	—	4	—
3	Traumatic Inflammation	2	—	—	1	—	—	—	—	3
17		2	—	—	—	3	5	7	17	—
124		94	3	8	3	3	5	8	81	43

"OTHER FOOD DESTROYED

" Fish	{ 20 tons, and 20 bags of shell-fish.
Poultry	121
Sheep feet.	2000
Rabbits	850
Fruit	12 cwt.
Vegetables.	4 tons 10 cwt.

"The want has been felt for some considerable time for a place under our control where suspected animals from farms and elsewhere could be taken and slaughtered, and where unsound food of all kinds could be stored, and arrangements have been made with the Market Committee of the Corporation for that purpose."

WIGAN

In the year 1900, Dr. W. Berry, M.O.H., submitted a report to the Sanitary Committee of that city on the necessity and advisability of establishing a public abattoir, stating the recognised hygienic, economic, and humanitarian reasons for adopting that system. So far, however, no Corporation abattoir has been provided. We quote the following paragraphs from various reports from Dr. Berry.

In 1901 the M.O.H. presented a report on the existing slaughterhouses within the borough. It gave particulars of twenty slaughterhouses, concerning which the writer of the report summed up thus :

"It will be seen from the detailed report that not a single slaughterhouse in the borough complies with the L.G.B.'s requirements, and it would be difficult for most of the existing buildings to be so improved that they would do so. The erections that have been put up in the first instance for slaughterhouses can be improved, but as these, so altered, would not do away with the necessity for a municipal abattoir, nothing

has been done to attain that end. Out of the twenty reported on, not more than seven are suitable for killing purposes."

Report on the meat-supply of the borough, December 1904 :

The Inspection of Meat. "With regard to the inspection of meat, we cannot do more than is being done by our present staff of inspectors. An inspector cannot be present at the killing of every animal. Many of the butchers send for us when they find tuberculosis in the carcase, and are willing to surrender it when we condemn it. Since January 1 this year twelve and a half carcasses have been surrendered and destroyed. We have no power over the living animal, and we have no power over outside slaughterhouse or meat brought dressed into the town, unless it is visibly unfit for food. It is not the 'Slink' meat that is brought into the town ; *slink* meat is decomposing meat, or the animal has died from some disease, but the meat which is most dangerous is the tuberculous meat, and we prevent this being sold as far as we can. We must remember that the most of this meat is second- and third-rate meat, but not *slink*, and is sold in the poor neighbourhoods at a low price. This sale we control as well as we can, and this is difficult under the circumstances as it is not easy to be certain of tuberculosis after the animal has been dressed and cut up. The only remedy for further protection is the establishment of *public abattoirs* and the abolition of the present insanitary slaughterhouses. I have previously pointed out in a report on these that seven out of twenty are only suitable for killing purposes, the rest being insanitary and unsuitable.

"Since this report, made in 1901, one slaughterhouse for pigs has been rebuilt and made sanitary.

"The meat condemned this year (eleven months) amounts to 9016 lb."

Advantages of the Public Abattoir. "The advantages of a *municipal abattoir* are apparent. All the insanitary slaughterhouses would be abolished, and it is in these that the poor, aged, and lean beasts are killed. We should be able to see the animals alive and see the carcase dressed, and no butcher would dare to bring in sick animals for the purpose of killing them, 'to save them dying.' Meat would then be dressed under the most cleanly and sanitary surroundings.

"The slaughterhouses which would still remain would gradually lessen in number when the advantages of the public abattoir became known and appreciated ; such a condition holds in St. Helens, and now they have very few private slaughterhouses.

"With regard to the *slink meat* which is brought into the town, we should know what shops were supplied from outside, and this would enable us to give them special attention. There are few slaughterhouses in districts adjoining the borough, and *slink* is mostly dressed in the shippon or outhouse of the farmer, so that it would be much easier to prevent its admission, and I am not quite sure whether we should not be able to compel the butcher to bring his meat into the abattoir for inspection. There are many other reasons for the establishment of a *municipal slaughterhouse*."

The following is from the Annual Report of the M.O.H., 1908 :

Meat Inspection and Slaughterhouses. "The slaughterhouses have been regularly visited by the inspectors, and I have myself paid many visits and surprise visits. The butchers send frequently to have tuberculosed beasts examined and, when condemned, readily surrender the meat. The magistrates here are not yet alive to the seriousness of selling tuberculosed meat, for in a case where the inspector seized a fore-quarter of a cow, on the costal pleura of which was a piece of tubercle larger than a five-shilling piece (this fore-quarter being exposed for sale in a shop), they inflicted no fine, but let him off on payment of costs. The sanitary condition of the various slaughterhouses is not good, in most cases bad, and are a long way off complying with the requirements of the Local Government Board. Nothing short of a public abattoir can give us a place fit for killing meat for human consumption. No inspections of live cattle have been done during the year, but when possible in the future this shall be done.

"Appended is the work which has been carried out in connection with the above. The question of a public abattoir is still before the Committee, and until one is erected the work thrown on the staff in inspecting carcasses by request of the butchers is bound to be heavy.

"The occupiers of the slaughterhouses try, I think, to the best of their ability to comply with the bylaws, but have to be frequently cautioned about the removal of garbage as soon after killing as possible.

"SLAUGHTERHOUSES AND MARKETS, &C.

" Number of slaughterhouses in borough	27
,, offensive trade premises in borough	7
,, visits to slaughterhouses	1205
,, ,, offensive trade premises	61
,, ,, markets	309
,, letters sent out	7
,, condemned food certificates given	233

"Number of beasts that have been inspected by request during 1908 :

" Number of beasts passed	233 $\frac{1}{4}$
,, ,, condemned	19 $\frac{3}{4}$

"FOOD CONDEMNED, 1908

" January	2 beasts, 8 turkeys, 2 hares, 176 rabbits, 1 kit and 37 boxes of fish.
February	3 beasts, 4 boxes of fish, 1 box and 19 $\frac{1}{2}$ pork kidneys.
March	1 fore-quarter of beef, 33 rabbits, 15 boxes of fish
April	4 beasts, 43 rabbits, 21 boxes of fish.
May	2 beasts, 95 rabbits, 9 kits and 37 boxes of fish.

June	. . .	1 basket and 1 bag of livers, 18 rabbits, 1 bag and 1 basket of shrimps, 7 bags of offal, 63 boxes, 1 barrel and 22 fish.
July	. . .	$\frac{1}{2}$ beast, 1 bag of trotters, 1 bag of offal, 3 baskets of yeast, 64 boxes and 22 lb. of fish.
August	. . .	1 beast, 29 boxes, 1 barrel and 1 fish.
September	. . .	2 beasts, 6 bags of cockles, 151 and 1 box of rabbits, 46 boxes of fish.
October	. . .	1 pig, 4 beasts, 3 fore-quarters and 94 lb. of beef, 1 bag of mussels, 10 chickens, $51\frac{3}{4}$ boxes of fish, 993 rabbits.
November	. . .	2 beasts, 2 fore-quarters of beef, 1 turkey, 45 rabbits, 18 boxes of fish.
December	. . .	2 boxes of fish.

“ SUMMARY

“ 20 $\frac{1}{2}$ beasts.	23 fish.
6 fore-quarters of beef.	1 box of kidneys.
1 pig.	19 $\frac{1}{2}$ kidneys.
9 turkeys.	1 basket of livers.
10 chickens.	1 bag of livers.
2 hares.	1 „ shrimps.
1 box of rabbits.	1 basket of shrimps.
1554 rabbits.	8 bags of offal.
10 kits of fish.	1 bag of trotters.
387 $\frac{3}{4}$ boxes of fish.	3 baskets of yeast.
2 barrels of fish.	6 bags of cockles.
22 lb. of fish.	1 bag of mussels.

“ The following statement shows the quantities of unwholesome food destroyed at the Miry Lane Depot during the year :

	Tons	Cwt.	Qr.
“ Fish	33	13	0
Beef	11	10	1
Pork		5	3
	45	9	0

“ In addition to the above, the following was destroyed :

	Tons	Cwt.	Qr.
“ Shell and fish refuse	30	12	1
Other refuse	255	6	3
	285	19	0

" PROSECUTIONS, 1908

- " February 24. For exposing for sale 7 pieces of meat, which were diseased, unsound, and unfit for the food of man. Fined £10 and costs.
- May 4. For having in his possession 2 carcasses of beef and offal which were then diseased, unsound, and unfit for the food of man. After warrant issued fined £5 and costs.
- June 15. For exposing for sale 1 box of haddocks which were then unsound and unfit for the food of man. Fined 1s. and costs.
- October 1. For non-compliance of notice under Public Health Acts for nuisance existing. Pay costs and comply within a month.
- " For non-compliance of notice under Public Health Acts for nuisance existing. Pay costs. Abate within two months.
- October 5. For selling to the prejudice of the purchaser 1 lb. of butter not of the nature, &c., demanded. Case dismissed.
- " For selling to the prejudice of the purchaser 1 pint of new milk, not of the nature, &c., demanded. Case withdrawn.
- November 12. For having in their possession and exposing for sale 27 pieces of meat, which were then unsound, diseased and unfit for the food of man. Warrant issued for their arrest.
- " For exposing for sale 1 fore-quarter of beef which was diseased and unfit for the food of man. Pay costs."

ST. HELENS

We are indebted to Dr. John J. Buchan, M.O.H., for the following information as to meat inspection in St. Helens. It is of special interest in so far as it sets out in detail the causes of the condemnation or seizure of the various organs, and also indicates the gradual diminution in the number of animals slaughtered in private slaughterhouses as compared with the public abattoir.

Meat. "At the end of 1908 there were in addition to the public abattoir seven licensed private slaughterhouses in the borough—five for cattle and pigs and two for pigs only. One licence was given up during the year. The number of butchers slaughtering on licensed premises outside the public abattoir was eleven. The private slaughterhouses were regularly visited by the district inspectors, 300 visits being paid to them, and advice was also frequently sought by the licensees from the officers of the Local Authority as to what should be done in certain cases.

Shop inspection was carried out frequently, and on each Friday and Saturday night and at occasional other times the market was visited. It was necessary to seize food in one case and to have it condemned by a magistrate, but in most other instances the meat was voluntarily given up, there having been no attempt to expose it for sale. The work of meat inspection at the public slaughterhouse is carried out by the abattoir superintendent, who is a practical butcher holding the certificate in meat inspection of the Royal Sanitary Institute. In any case of doubt or difficulty he consults with the M.O.H. and the veterinary inspector, and this arrangement has worked smoothly and satisfactorily.

“The number of animals slaughtered in St. Helens during 1908 was 17,258; of these 12,184 were killed in the public abattoir and 5074 in licensed private slaughterhouses.

“ANIMALS SLAUGHTERED IN ST. HELENS SINCE 1900

Animals Killed.	1900	1901	1902	1903	1904	1905	1906	1907	1908
Number of beasts killed within the borough in public and private slaughterhouses for market purposes .	3,647	3,318	4,937	3,229	3,049	2,632	3,118	3,468	3,260
Number of sheep .	3,537	3,780	3,957	3,288	3,747	4,161	5,282	5,045	5,053
„ calves .	413	338	451	343	329	301	404	509	440
„ pigs .	7,748	6,810	7,899	8,942	9,729	8,291	6,872	8,141	8,505
Total .	15,345	14,246	17,244	15,802	16,854	15,385	15,676	17,153	17,258
Beasts killed in the Corporation slaughterhouse which are included in the above number .	9,597	8,957	11,381	9,867	11,457	9,060	9,043	11,530	12,184

“CATTLE BEASTS SLAUGHTERED SINCE 1899

				Public abattoir.		Private slaughterhouses.
“ 1899 .	.	.	.	2682	..	734
1900 .	.	.	.	3131	..	516
1901 .	.	.	.	2690	..	628
1902 .	.	.	.	4140	.	797
1903 .	.	.	.	2710	.	519
1904 .	.	.	.	2533	..	516
1905 .	.	.	.	2197	..	435
1906 .	.	.	.	2791	..	327
1907 .	.	.	.	3031	.	437
1908 .	.	.	.	2944	.	316

“ UNSOUND FOOD SEIZED OR GIVEN UP DURING THE YEAR ENDING
DECEMBER 31, 1908

“ 16 bodies of beef affected with tuberculosis.		
275 sets of lungs	„	
63 udders	„	
120 beasts' heads	„	
129 briskets	„	
69 middle pieces	„	
30 fore-quarters	„	
39 beasts' livers	„	
104 sets of viscera	„	
19 beasts' spleens	„	
34 skirts	„	
103 beasts' kidneys	„	
8 hind-quarters	„	
15 sirloins	„	
20 bellies	„	
14 beasts' hearts	„	
10 ribs	„	
2 neck ends	„	
4 pigs' viscera	„	
7 „ plucks	„	
3 pigs and viscera	„	
3 pigs' livers	„	
4 „ hearts	„	
10 „ bellies	„	
17 „ heads	„	
14 flanks	„	
3 shoulders	„	
10 rumps and sirloins	„	
25 udders affected with abscesses.		
16 livers	„	„
11 sets of lungs	„	„
42 livers	„	necrosis.
46 „	„	cirrhosis.
1 pig's viscera	„	„
8 sets viscera	„	peritonitis.
2 pigs and viscera affected with skin eruption.		
63 livers	„	distoma.
5 sets lungs	„	dropsy.
2 calves and viscera	„	„
8 sets pigs' viscera	„	„
1 pig and viscera	„	„
1 pig's heart	„	„
1 „ kidney	„	„
1 „ stomach	„	„

2	bodies of beef affected with dropsy	
2	lengths of pork	„ „
19	udders	„ mammitis.
9	sets of lungs affected with cysts.	
4	livers	„ „
5	sets of lungs	„ congestion.
2	livers	„ „
3	pigs' plucks	„ „
33	livers	„ spotted capillary.
2	hearts	„ pericarditis.
1	heart	„ tubercular pericarditis.
1	belly	„ traumatic „
2	hearts	„ „
1	skirt	„ „
2	briskets	„ „
1	set of lungs	„ traumatic injury.
1	liver	„ „
1	skirt	„ „
48	livers	„ flukes.
3	sets lungs	„ echinococcus veterinorum.
3	livers	„ „
10	„	„ degenerated cysts.
2	„	„ „ tissue.
2	„	„ fatty degeneration.
2	bellies	„ „
1	pig and viscera	„ dropsy and tuberculosis.
2	hind-quarters	„ septic inflammation.
1	set viscera	„ „
3	pigs and viscera	„ extreme emaciation.
4	„ „	„ erysipelas.
2	kidneys	„ nephritis.
172	lb. beef	„ bone taint.
1	set pig's lungs	„ pleurisy.
1	pig and viscera	„ abscesses and dropsy.
2	flanks	„ inflammation.
1	liver	„ „
1	pig	„ jaundice.
1	pig's pluck	„ strongylus paradoxus.
1	set of lungs	„ „
1	pig and viscera	„ septicæmia.
2	pigs and viscera	„ swine fever.
2	pigs' livers	„ cirrhosis.
2	loins of pork, attenuated.	
36	boxes of fish, mouldy.	
13	„ „	„ decomposed.
140	„ „	„ putrid.
2	„	„ kidneys, putrid.

3 boxes of oxtails, putrid	
1 bag offal, unsound.	
1 bag mussels	„
108 lb. beef	„
2 sets of tripe	„
2 dozen kidneys,	„
15 boxes of fish	„
4 chucks	„
1 fore-quarter	„
1 set lungs	„
3 livers, pipey.	
5 middle pieces,	} unmarketable from commencing decomposition."
2 briskets	
5 sirloins	
2 ribs	

STOCKPORT

The M.O.H., Dr. H. E. Corbin, reports as follows for 1908 :

Private Slaughterhouses. "To the forty-seven slaughterhouses in the borough 2152 visits have been made at irregular intervals.

"In four instances the premises have been redrained, and new offal tins provided in five cases.

"Advantage is always taken of a change of occupation to have repairs carried out, and by this means old and unsuitable premises are often improved and made more suitable for slaughtering purposes.

"Your Committee sanctioned the building of one new slaughterhouse during the year, and application will be made in due course for a licence for the occupation of the same, which by arrangement will be granted subject to the old one being given up.

"The removal of offal still continues a source of trouble at these places, and one is inclined to the conclusion that this work could with advantage be undertaken by the Cleansing Department free of cost.

"The various butchers', fishmongers' and fruiterers' shops, together with the market-place, have been kept under observation during the year, and although considerable quantities of various food-stuffs (shown in the adjoining list) were condemned and destroyed, it was not found necessary to take legal proceedings in a single case.

" 25 boxes haddock.	
5 „ kippers.	
3 „ herrings.	
1 „ bream.	
62 „ strawberries.	
13 „ raspberries.	
5 „ tomatoes.	
3 „ damsons.	
4 „ oranges.	

2 hampers cauliflowers.
58 couples rabbits.
140 pigs' feet.
13 plucks.
180 lb. meat.
368 lb. bacon, ham, and pork.
6 fore-quarters, beef
2 hind-quarters, „ } tuberculosis.
13 carcasses of beef
6 „ pigs }
1 side of beef } fevered.
4 carcasses of pigs }
57 livers, lungs, &c.—localised tuberculosis
or distomum hepaticum.”

CHESTER

Dr. J. Currie, M.O.H., sends the following information as to the procedure in that city :

“ The work of meat inspection is carried out by the Public Health Department. The present Chief Sanitary Inspector is specially appointed as Meat Inspector, having had a training in animal pathology and passed a qualifying examination. There is no *public abattoir* in the city. There are twelve *private slaughterhouses*, used by thirty-seven butchers. The *public market* contains numerous butchers' stalls, and auction sales are held in the *cattle market* every Tuesday.

“The *public market* is patrolled on Saturday evening, and *butchers' shops* are visited during the week. A routine inspection is made of all *slaughterhouses*, generally at the time of killing, when carcasses and offal are carefully examined. The *cattle sales market* is visited on Tuesday. If an animal shows signs of disease, the name and address of the purchaser are noted and the animal is followed up. Should the animal be taken outside the city boundary the Local Authority concerned is notified where practicable.”

Inspection by Request. "In order to expedite the work of meat inspection, the following letter, at the instance of the Public Health Committee, was sent by the M.O.H. in October 1907 to every known butcher in the city :

“ ‘ At a recent meeting of the Public Health Committee I was instructed to ask your co-operation in preventing unsound and diseased meat being exposed for sale for human consumption.

“ If any such unsound or diseased meat, however slight in amount or degree, or if any unusual appearance or condition of carcase or offal is brought to your notice, you should communicate directly with Mr. A. T. Eginton, Forest House, the appointed Meat Inspector for the City, who will call and make an official inspection as soon as possible afterwards. If you wish to do so, you may

surrender such unsound or diseased meat for destruction : notice to that effect should be sent to Mr. Eginton.

“ “ I am asked to point out also that, in the absence of such notice or surrender, the possession of unsound or diseased meat may later be possibly construed as *prima facie* evidence of preparation or exposure for sale for human consumption.

“ “ Consequently, by adopting the course suggested you will relieve yourself of a certain amount of responsibility and greatly help forward the work of meat inspection in the city.’

“ The results of this letter have been salutary.

“ Frequent application is made for the meat inspector to visit slaughter-houses and examine carcasses.

“ Condemned carcasses are removed to a knacker’s yard and effectually disposed of under the supervision of the meat inspector.

“ In the case of surrender following official inspection, the following form is signed by the owner of the carcass :

“ CITY AND COUNTY BOROUGH OF CHESTER

“ *To the Medical Officer of Health,*

“ Forest House,

“ Chester.

“ *Form of Application for Surrender of Food-stuffs*

“ hereby apply to the Council of the City and County Borough of Chester to remove from

.....
.....
as trade refuse.....

.....
.....
.....
.....
.....
.....

“ Dated this.....day of1909.

“ Signature of applicant

“ Address

“ *Witness*

.....

.....

.....

.....

“ In dealing with carcasses affected by tuberculosis the recommenda-

BOVINE TUBERCULOSIS

A bovine tubercular liver, showing superficial nodular deposits.



tions of the Royal Commission are observed. In the case of voluntary surrender of a carcase the fat, if not extensively diseased, is removed in the presence of the inspector and disposed of in a manner satisfactory to him.

“In the Chester Municipal Laboratory bacteriological and microscopic examinations are made in cases of tuberculosis, anthrax, quarter evil, actinomycosis, coccidiosis, and other diseases affecting the tissues of animals whose flesh is consumed as food.

“A scheme of insurance which holds in Chester, and which pays compensation for the loss of any carcase over £12 value condemned by the Public Health officials as being unsound or unfit for the food of man, has been of great service.”

NOTTINGHAM

In kindly sending his report for Nottingham, Dr. Boobyer, M.O.H., writes: “We have no abattoirs here, but the necessity for them is so obvious that we hope to secure them before long. Thanks to a particularly efficient inspectorial staff, I think I may safely say that comparatively little unwholesome or dubious food finds its way to the consumer. The butcher’s meat condemned for tubercle, and other causes of unfitness, has steadily increased in amount, but, whereas some years ago we were under the necessity of seizing and prosecuting in almost every case where a butcher had in his possession unwholesome meat, we now have the greater part of unfit or doubtful material in the market submitted for our inspection. Seventy-five per cent. of the butcher’s meat taken by us is condemned for tubercle.”

The following paragraphs are from Dr. Boobyer’s Report for 1908:

Slaughterhouses. “The slaughterhouses of the city now number 155, two new ones, in Mount Street, New Basford, and in Bradford Street, Bulwell, respectively, having been opened under annual permits during 1908. For some years it has been the practice of the City Council to discourage the erection of private slaughterhouses, in order to hasten the development of a central abattoir scheme for the city and ensure its success when developed. I would again recommend that such a scheme be commenced, as originally projected, at some site near the Cattle Market and Midland Railway Station, upon such a commencing scale as to provide only for the current needs of the trade in the way of new slaughterhouse accommodation, but with such arrangement of site and buildings as to allow of extension from time to time to meet growing requirements.

“Many of the existing private slaughterhouses are serious nuisances to the neighbourhoods in which they are placed, and in the light of a recent decision of the High Court, it would appear that many of them could be closed without much difficulty or expense. The following quotation from my own report of last year sufficiently explains this decision:

“‘A recent decision of the High Court makes it clear that slaughterhouse licences granted under the provisions of the Towns Improvement Clauses Act of 1847, Sections 125 to 130 of which are incorporated in

the Public Health Act of 1875 by virtue of Section 169, are personal and temporary licences, continuing in force only during the life (or occupancy) of the original licensees. The Act of 1875 repealed the Local Government Act of 1858, and directly incorporated the original provisions of the 1847 Act as to slaughterhouses. Under the above decision a large number of the slaughterhouses now in use as such in Nottingham are, without doubt unlawfully used.' ”

Unwholesome Foods. “The following lists of unwholesome food-stuffs seized or surrendered during the past year are self-descriptive, the kind and amount of each being given. A large part of the butchers’ meat is condemned for intrinsic unwholesomeness, like tuberculosis or other disease of the animals which yield it, but most of the other rejected food is wasted for lack of good management on the part of those who have the handling of it between the producers and the private consumers.

“The amounts vary too much with variations in weather conditions, and other numerous accidental circumstances, to allow of a fair comparison of one season with another, but, speaking generally, it may be said that with us at any rate the weather factor is predominant, and taking two fairly similar years from a weather standpoint, like 1907 and 1908, the total weights of fresh foods of various kinds rejected and destroyed in each will be more or less similar.

“Messrs. Samuel Billington, Cert.R.San.I., and H. T. Moore, have been indefatigable during the past year in their efforts to cover the large area over which their inspecting jurisdiction extends, but it is quite impossible for them to do this in a thoroughly effective manner without assistance.

“ BUTCHERS’ MEAT

Description.	Weight.	
	Imp. stones.	lb.
“ Beef	7,881	3
Viscera.	2,424	10
Mutton	84	1
Pork	785	10
Veal	182	11
Lamb	3	8
Tripe	18	7
Sausages	2	12
Total	11,383	6

“ GAME, &C.

	Stones	
	Stones	lb.
“ Rabbits	844	7
Hares	86	7
Rooks	11	7
Ptarmigan	2	0
Pheasants	0	3½
Total	944	10½

“POULTRY

"POULTRY					Stones.	lb.
" Geese	.	.	.	.	40	0
Chickens	.	.	.	.	37	3½
Turkeys	.	.	.	.	28	10½
Ducks	.	.	.	.	19	3½
Pigeons	.	.	.	.	6	0
Total					131	3½

“WET FISH

Hake	2,151	3½
Coalfish	1,296	0
Cod	1,147	10½
Herrings	1,074	0
Sprag	781	7
Mackerel	430	0
Codling	406	3½
Whiting	326	7
Ling	223	3½
Halibut	207	10½
Sprats	172	0
Haddock	138	10½
Roes	109	0
Sea bream	76	7
Mixed fish	71	0
Soles	70	10½
Plaice	62	0
Dabs	58	0
Skate	52	10½
Lemon soles	47	7
Smelts	36	0
Catfish	34	7
Conger-eel	18	7
Pollock	13	7
Trout	12	10½
Megrims	12	3½
Salmon	12	0
Turbot	6	0
Brill	3	7
Grilse	3	0
Fish chitterling	1	7
John Dory	0	7
Slip soles	0	3½
Total	9,057	3½

" SHELL-FISH					Stone.	lb.
" Mussels	.	.	.	.	4,035	0
Shrimps	.	.	.	.	641	0
Whelks	.	.	.	.	377	0
Crabs	.	.	.	.	221	7
Oysters	.	.	.	.	179	0
Cockles	.	.	.	.	141	0
Prawns	.	.	.	.	119	7
Crayfish	.	.	.	.	57	0
Lobster-prawns	.	.	.	.	12	0
Lobsters	.	.	.	.	5	3½
Total					5,788	3½

CARDIFF

This is one of the cities of this country in which the importance of adequate meat inspection has been recognised for a very long time. So long ago as 1835 the Cardiff Corporation Act made it illegal to slaughter cattle in any but municipal slaughterhouses, and the subject has received increased attention in recent years until at the present time, as the following pages will show, it occupies a very prominent place in the annual reports of the M.O.H. This information, kindly sent to us by Dr. Walford, M.O.H., is not only extremely interesting in itself for the facts it gives, but is an admirable model for meat inspectors and others for the arrangement of such material, and hence we have pleasure in quoting fully from Dr. Walford's reports. The following paragraphs are from the Report of 1908, and will be seen to contain certain suggestions, which have since been carried out.

Food Inspection. "The inspection of meat and other foods has been systematically carried out during the year. As all the slaughtering within the limits of the city is done in the two public abattoirs belonging to the Corporation, it is comparatively easy to exercise an efficient supervision over the carcasses of animals slaughtered upon these premises, as well as over the meat exposed for sale in the markets adjoining the slaughterhouses. Under these circumstances, when unsound meat is discovered and is voluntarily surrendered by the owner, no proceedings are taken under sections 116 and 117 of the Public Health Act, 1875. No order for destruction is in such cases made by the magistrates, and the meat is destroyed under the supervision of an inspector of the Sanitary Authority.

"The staff of inspectors of meat and foods comprises the following : Mr. P. J. Mullane, M.R.C.V.S., Veterinary Surgeon to the Corporation, acts as Chief Inspector of Meat. By arrangement between the Health Committee and the Property and Markets Committee, Mr. N. Rees, the Superintendent of the Roath Abattoir, and four of his assistants are appointed to assist in the inspection of meat in the public slaughterhouses.

Mr. G. M. McGregor, who holds the Certificate of the Royal Sanitary Institute for Meat Inspectors and who was formerly a butcher, acts as Meat and Food Inspector in Shops and Markets within the city. In connection with the meat inspection, full use is made of the Public Health Laboratory for purposes of diagnosis.

“The following Table shows the amount of meat and other food found by the M.O.H. to be unfit for food and destroyed, either with the consent of the owner or by an order of a magistrate, in each year during the period 1896-1908.

Year.	Food.
“ 1896	3,896 lb.
1898	10,824 „
1898	9,929 „
1899	14,205 „
1900	21,217 „
1901	33,696 „
1902	43,675 „
1903	41,710 „
1904	41,606 „
1905	41,212 „
1906	48,909 „
1907	54,180 „
1908	146,102 „

“During the year 1908 the number of animals slaughtered in the public slaughterhouses in the city was as follows :

	Roath abattoir.	Canton abattoir.
“ Beasts	7,141 ..	814
Sheep	37,102 ..	4,930
Calves	4,727 ..	209
Pigs	22,242 ..	4,331
Totals	71,212 ..	10,284

“ UNSOUND MEAT SEIZED OR SURRENDERED

Place of seizure.	Number of carcases.	Number condemned by magistrates.	Number destroyed by arrangement with owner.	Total weight in lb. of whole and part carcasses destroyed.
Roath slaughterhouse	103	—	103	36,102
Canton „	7	—	7	3,842
Totals . . .	110	—	110	39,944

“ The cause of seizure in each case was as follows :

“ Bruised	1 sheep
Cirrhosis and dropsy	1 pig
Decomposition	1 sheep
Distomatosis	2 „
Dropsy	1 pig
„	1 sheep
Dropsy and emaciated	1 „
Emaciated	2 „
Exhaustion	1 „
Found dead	7 pigs
„	1 sheep
Inflammation	1 pig
Injuries	1 sheep
Jaundice	2 pigs
Parasites	2 sheep
Septic peritonitis	2 pigs
„ pleurisy	1 pig
Suffocation	1 sheep
Tuberculosis	53 pigs
„	28 beasts

“ Meat and other food seized or surrendered at shops, stores, &c. :

“ Beef	1,866 lb.
Mutton	3,071 „
Pork and bacon	16,222 „
Veal	819 „
Rabbits	4,113 „
Poultry	975 „
Fish	18,580 „
Vegetables	18,289 „
Fruit	27,020 „
Provisions	14,607 „
Sweets	580 „
Cream	16 „
Total	<u>106,158 „.</u>

“ In addition to the above, eighty-two gallons of milk were destroyed.

“ During the year a Joint Committee of the Health and Property and Markets Committees was formed to take into consideration some alterations in the administration of the public slaughterhouses and meat markets. After due inquiry the Joint Committee made the following recommendations :

“ (1) That the slaughterhouses at Roath and Canton (excluding the fabric and market office), the entire supervision of slaughtering and slaughtermen, cleansing, and such assistance as may

MEAT INSPECTION IN THE PUBLIC SLAUGHTERHOUSES AT
ROATH AND CANTON, 1899-1908

	Year.	Number of animals slaughtered.	Number of animals condemned	Percentage condemned.
Roath . . .	1899	75,684	} 31	0.04
Canton . . .	"	9,694		
Total . . .		85,378		
Roath . . .	1900	83,880	30	0.03
Canton . . .	"	10,783	1	
Total . . .		94,663	31	
Roath . . .	1901	69,385	61	0.08
Canton . . .	"	10,578	5	
Total . . .		79,963	66	
Roath . . .	1902	73,528	66	0.09
Canton . . .	"	11,518	9	
Total . . .		85,046	75	
Roath . . .	1903	69,146	72	0.09
Canton . . .	"	12,112	5	
Total . . .		81,258	77	
Roath . . .	1904	74,550	80	0.10
Canton . . .	"	11,154	8	
Total . . .		85,704	88	
Roath . . .	1905	70,076	74	0.10
Canton . . .	"	10,482	10	
Total . . .		80,558	84	
Roath . . .	1906	67,155	94	0.14
Canton . . .	"	10,428	14	
Total . . .		77,583	108	
Roath . . .	1907	68,845	81	0.11
Canton . . .	"	10,888	9	
Total . . .		79,733	90	
Roath . . .	1908	71,212	103	0.13
Canton . . .	"	10,284	7	
Total . . .		81,496	110	

be necessary, and a proportion of the fees for slaughtering and slaughtermen, be transferred to and vested in the Health and Port Sanitary Committee (subject to the approval of the Council in all things).

“(2) That the M.O.H. submit to the Joint Committee in due course a scheme for carrying this out in detail ; and that in connection therewith he consult the City Treasurer and Controller as to the proportion of the manager’s wages and slaughtering and slaughtermen’s fees, loan charges and other financial details, to be borne by each Committee concerned.

“(3) That the above arrangement come into operation on such a date as the Treasurer and the M.O.H. may recommend.

“(4) That as and from the date fixed under No. 3 hereof, the allowances to the Market Staff for meat detection cease.

“In accordance with these recommendations the following report was presented to the Joint Committee :

“ ‘ SUGGESTIONS FOR CARRYING OUT THE PROPOSALS OF THE JOINT PROPERTY AND MARKETS AND HEALTH COMMITTEE OF JUNE 2, 1908

“ ‘ In order to carry out the proposals of the Joint Committee, the following arrangement is suggested.

“ ‘ At the present time the Health Committee is the authority responsible for the inspection of animals and meat. This duty is performed under the powers given by the Public Health Acts, the Diseases of Animals Act and the Orders and Regulations of the Board of Agriculture.

“ ‘ The Property and Markets Committee has control of the Roath and Canton Slaughterhouses, Meat and Cattle Markets, including the slaughtering and cleansing of the slaughterhouse premises.

“ ‘ Your Joint Committee now recommends, in order to simplify the administrative work hitherto performed under two Committees with separate staff, that the entire supervision of the slaughtering, slaughtermen and cleansing should be transferred to the Health Committee, which is now the Committee responsible for the inspection of cattle and meat. This arrangement would in my opinion add to the efficiency of the meat inspection in the slaughterhouses and meat markets, as it is obvious that the dual control over the same men in the performance of duties so closely allied as those of slaughtering and the inspection of carcasses is unsatisfactory and inconvenient. It is suggested, therefore,

“ ‘ That the Superintendent and his Assistants at the Roath Slaughterhouse be relieved entirely of their duties as Meat Inspectors under the Health Committee.

“ ‘ That Mr. Mullane, M.R.C.V.S., act as Chief Meat Inspector in the Department of the Medical Officer of Health.

“ ‘ That two Meat Inspectors be appointed by the Health Committee to devote their whole time to the duties of their office, to rank as Assistant

Inspectors, with a commencing salary of £91 each, rising in accordance with the scale now in force for the inspectors in the Health Department ; that they be provided with uniform or overalls suitable for this work, and perform their duties under the immediate direction of the Chief Meat Inspector, such duties to be set forth at the time of their appointment.

“ ‘ That Mr. Rees and his assistants carry out the instructions of the Chief Meat Inspector, Mr. Mullane, with respect to the disposal of animals, carcasses, internal organs and slaughterhouse refuse, including the cleansing and disinfecting of the premises in accordance with the Orders of the Board of Agriculture and with the requirements of the Public Health Acts.

“ ‘ That the duties of the Chief Meat Inspector and his Assistants include the inspection of meat at the Roath and Canton Slaughterhouses and the adjacent cattle and meat markets.

“ ‘ That these Assistants must, at the time of their appointment, possess the Certificate of Meat Inspector of the Royal Sanitary Institute.

“ ‘ EDWARD WALFORD, M.D.,
“ ‘ *Medical Officer of Health.*’

“ In connection with food inspection, the conclusions of the second Interim Report of the Royal Commission recently appointed to inquire into the relations of human and animal tuberculosis are of interest. The following is a summary of these conclusions :

“ ‘ There can be no doubt that in a certain number of cases the tuberculosis occurring in the human subject, especially in children, is the direct result of the introduction into the human body of the bacillus of bovine tuberculosis ; and there also can be no doubt that in the majority at least of these cases the bacillus is introduced through cow’s milk. Cow’s milk containing bovine tubercle bacilli is clearly a cause of tuberculosis, and of fatal tuberculosis in man. A very considerable amount of disease and loss of life, especially among the young, must be attributed to the consumption of cow’s milk containing tubercle bacilli. The presence of tubercle bacilli in cow’s milk can be detected, though with some difficulty, if the proper means be adopted, and such milk ought never to be used as food. There is far less difficulty in recognising clinically that a cow is distinctly suffering from tuberculosis, in which case she may be yielding tuberculous milk. The milk coming from such a cow ought not to form part of human food, and indeed ought not to be used as food at all. Our results clearly point to the necessity of measures more stringent than those at present enforced being taken to prevent the sale or the consumption of such milk.’

“ With respect to tuberculosis in cattle and pigs slaughtered for human food, the procedure set forth in previous reports has been continued, and is in accordance with the principles laid down by the Royal Commission on Tuberculosis and embodied in the following circular letter sent by the Local Government Board to all Sanitary Authorities :

“ ‘ SEIZURE AND CONDEMNATION OF TUBERCULOUS MEAT,

“ ‘ Local Government Board,

“ ‘ Whitehall, S.W.

“ ‘ 7th September, 1904.

“ ‘ SIR,—I am directed by the Local Government Board to state that they have had under consideration the Report of the Select Committee of the House of Commons on the Tuberculosis (Animals) Compensation Bill, 1904, in which reference is made (*a*) to the variety of practice alleged to exist with regard to the amount of tubercular deposit, the existence of which in a carcase is held to justify its total condemnation ; and (*b*) to complaints made by butchers as to the injury caused to them by their prosecution in open court for having tuberculous meat upon their premises.

“ ‘ With regard to (*a*), it appears to the Board to be most desirable that there should be uniformity in the practice of meat inspectors in dealing with the carcasses of cattle ; and they have already on two occasions, viz., in their circular letters of the 11th March, 1899, and 6th September, 1901, set out and urged the observance of the principles laid down by the Royal Commission on Tuberculosis in their report of 1898 with respect to the degree of tubercular disease which should cause a carcase or part thereof to be seized. The Royal Commission stated as follows :

“ ‘ “ We are of opinion that the following principles should be observed in the inspection of tuberculous carcasses of cattle :

- | | |
|--|--|
| “ ‘ “ (<i>a</i>) When there is miliary tuberculosis of both lungs. | } The entire carcase and all the organs may be seized. |
| “ ‘ “ (<i>b</i>) When tuberculous lesions are present on the pleura and peritoneum. | |
| “ ‘ “ (<i>c</i>) When tuberculous lesions are present in the muscular system, or in the lymphatic glands embedded in or between the muscles. | |
| “ ‘ “ (<i>d</i>) When tuberculous lesions exist in any part of an emaciated carcase. | |
| “ ‘ “ When the lesions are confined to the lungs and the thoracic lymphatic glands. | } The carcase, if otherwise healthy, shall not be condemned, but every part of it containing tuberculous lesions shall be seized.” |
| “ ‘ “ (<i>b</i>) When the lesions are confined to the liver. | |
| “ ‘ “ (<i>c</i>) When the lesions are confined to the pharyngeal lymphatic glands. | |
| “ ‘ “ (<i>d</i>) When the lesions are confined to any combination of the foregoing, but are collectively small in extent. | |

“ ‘ The Board are of opinion that, at the present time, measures more stringent than those advocated by the Royal Commission are not called for ; but they would impress upon the Council the expediency and

desirability of insisting upon those of their officers who are employed as meat inspectors acting in strict accordance with the principles thus laid down, if this is not already the case.

“ ‘ With regard to (b), the Select Committee express their view that, if a butcher who is in possession of tuberculous meat has notified the fact to the proper authority as soon as he could be reasonably expected to be aware of it, the case should not be taken into court.

“ ‘ The Board understand that in some districts the course recommended by the Committee is followed now, but where it is not so the Board suggest that, having regard to the serious consequences which may result to a butcher from prosecution in open court for being in possession of tuberculous meat, the Council should act upon the view expressed by the Select Committee in cases where such possession is voluntarily and promptly disclosed by the owner.

“ ‘ I am, sir,

“ ‘ Your obedient servant,

“ ‘ S. B. PROVIS, *Secretary.*’

“ During the year the carcasses of eighty-one animals affected with tuberculosis were dealt with in accordance with the recommendations of the Royal Commission, as most of these were detected by the meat inspectors at the municipal slaughterhouses (the only slaughterhouses in the city). The meat was surrendered voluntarily by the owners, and such cases were not taken into court.

“ Although the danger of transmitting tuberculosis through the medium of meat may not be very great, it is felt that in the interests of the consumer the inspection should be as complete as possible.

“ Within the city the inspection meets all reasonable requirements, but at the same time it affords an insufficient protection against the introduction of diseased meat from outside the urban district. The difficulties of inspecting meat in rural districts in which there are a large number of private slaughterhouses are considerable, and in very few of them does any satisfactory system of inspection obtain.”

Features of the Meat Inspection. Writing to the author and commenting on the foregoing Report for 1908, Dr. Walford says: “ I would add that the suggestions made in the Annual Report have been adopted and are now in operation. Two additional meat inspectors have been appointed who hold the Certificate of Meat Inspection of the Royal Sanitary Institute, so that at present there are three inspectors qualified in this way acting under the veterinary surgeon. The M.O.H. has general supervision and control of the meat and food inspection in the city. The chief features connected with meat inspection in Cardiff are: (1) That it is one of the few large towns in England and Wales in which there are no private slaughterhouses; all the slaughtering is done at the two municipal slaughterhouses; practically it is nearly all done in one slaughterhouse, the other not being much used. This, of course, facilitates meat inspection, and was brought about some years ago when

Cardiff was comparatively a small place, and when, upon the completion of the municipal slaughterhouses, there was only one private slaughterhouse in the town. This was given up very soon after the opening of the public slaughterhouses, and no licence has been granted since. Moreover, under the Cardiff Corporation Act, 1835 (still in force), it is illegal to slaughter cattle in any but municipal slaughterhouses. (2) The chief meat inspector is now, and has been for some years, a veterinary surgeon. He is also veterinary surgeon to the Corporation horses, and is veterinary inspector under the Diseases of Animals Acts "

The following paragraphs are from the quarterly reports for 1909, and are the most recent available :

Inspection of Meat, &c. "Animals slaughtered at the municipal slaughterhouses during the first quarter of 1909 :

	Roath abattoir.	Canton abattoir.
"Cattle	2,436	216
Sheep	9,014	901
Calves	956	46
Pigs	6,141	1,218
Totals	18,547	2,381

"UNSOUND MEAT SEIZED OR SURRENDERED AT ABATTOIRS

Place.	Carcases.				Destroyed by magistrate's order.	Destroyed by arrangement with owner.
	Beef.	Mutton.	Pork.	Veal.		
Roath abattoir . .	12	2	18	1	—	33
Canton „ . .	1	—	2	—	—	3
Totals	13	2	20	1	—	36

"The causes of destruction of carcases were as follows :

"Cirrhosis	2 pigs
Emaciated	1 sheep
Peritonitis and pleurisy	1 pig
Tuberculosis	12 beasts
„	16 pigs
Dropsy	1 beast
Found dead	1 sheep
Septicæmia	1 calf
Uræmia	1 pig
Total	36

"Weight of meat (whole and part carcases) seized or surrendered at abattoirs :

" Beef	12,724 lb.
Mutton	163 „
Pork	2,152 „
Veal	35 „
Total	15,074 „

" Weight of meat and other food seized or surrendered at shops, stores, &c. :

" Beef	2,153 lb.
Mutton	1,240 „
Veal	50 „
Pork and bacon	466 „
Fish	2,092 „
Poultry	46 „
Rabbits	12 „
Fruit	7,613 „
Vegetables	112 „
Provisions	2,103 „
Total	15,887 „

" Thirteen boxes of dates (13 lb.) and one carcass of mutton (50 lb.) were destroyed by magistrates' orders."

Inspection of Meat, &c. " Animals slaughtered at the municipal slaughterhouses during the second quarter of 1909 :

	Roath abattoir.	Canton abattoir.
" Cattle	1,376 ..	128
Sheep	11,259 ..	1,101
Calves	2,077 ..	108
Pigs	4,488 ..	878
Totals	19,200 ..	2,215

" UNSOUND MEAT SEIZED OR SURRENDERED AT ABATTOIRS

Place.	Carcases.				Destroyed by magistrate's order.	Destroyed by arrangement with owner.
	Beef.	Mutton.	Pork.	Veal.		
Roath abattoir	8	5	9	—	—	22
Canton „	1	1	—	—	—	2
Totals	9	6	9	—	—	24

" The causes of destruction of carcasses were as follows :

" Dropsy	1 sheep
Dropsy and emaciation	2 „
Emaciated	2 „

Found dead	1 sheep
Pleurisy	1 pig
„ and emaciation	1 beast
Septic peritonitis	1 pig
Tuberculosis	8 beasts
„	7 pigs
Total	24

“Weight of meat (whole and part carcasses) seized or surrendered at abattoirs :

“Beef	9,775 lb.
Mutton	226 „
Pork	1,294 „
Total	11,295 „

“Weight of meat and other food seized or surrendered at shops, stores, &c. :

“Beef	1,791 lb.
Fish	11,061 „
Fruit	8,412 „
Mutton	91 „
Pork and bacon	319 „
Provisions	3,183 „
Vegetables	4,214 „
Total	29,071 „

Inspection of Meat, &c. “Animals slaughtered at the municipal slaughterhouses during the third quarter of 1909 :

	Roath abattoir.	Canton abattoir.
“Cattle	1,276 ..	165
Sheep	14,061 ..	1,661
Calves	1,180 ..	75
Pigs	4,417 ..	897
Totals	20,934 ..	2,798

“UNSOUND MEAT SEIZED OR SURRENDERED AT ABATTOIRS

Place.	Carcases.				Destroyed by magistrate's order.	Destroyed by arrangement with owner.
	Beef.	Mutton.	Pork.	Veal.		
Roath abattoir	5	4	11	1	—	21
Canton „	3	—	—	—	—	3
Totals	8	4	11	1	—	24

“ The causes of destruction of carcasses were as follows :

“ Emaciation and dropsy	1 sheep
” ” 	2 beasts
Fluke and jaundice	1 sheep
Found dead	1 calf
” 	2 sheep
Pleurisy	2 pigs
Tuberculosis	6 beasts
” 	9 pigs
Total	24

“ Weight of meat (whole and part carcasses) seized or surrendered at abattoirs :

“ Beef	7,583 lb.
Veal	158 „
Mutton	419 „
Lamb	8 „
Pork	1,387 „
Total	9,555 „

“ Weight of meat and other food seized or surrendered at shops, stores, &c. :

“ Beef	1,161 lb.
Fish	4,721 „
Fruit	25,245 „
Mutton	72 „
Nuts	100 „
Pork	170 „
Poultry	36 „
Provisions	3,638 „
Rabbits	23 „
Vegetables	7,464 „
Total	42,630 „

NEWPORT

In kindly forwarding his report for 1908, Dr. J. Howard-Jones, M.O.H., makes the following remarks : “ Meat inspection receives special attention here, as will be seen from the number of visits paid to the public and private slaughterhouses, *i.e.* an average of 512 visits per slaughterhouse in twelve months. The value of the butcher’s meat condemned has, in one year, amounted to almost £800, but in every instance the meat was surrendered voluntarily to the authorities by the owners, who have not questioned the action of the M.O.H. by resort to legal proceedings in a single instance during the last thirteen years. In my report reference

is made to the absence of proper supervision in the county generally. Butchers have actually confessed that old animals and 'screws' are taken outside the borough for the purpose of slaughter. (I am informed that there is not one inspector in this county outside the borough who has any special qualification as a meat inspector.) In some reports I find that the slaughterhouses are inspected on an average about once a week; such supervision is perfectly useless."

(The state of matters which Dr. Howard-Jones so rightly condemns is, it is to be feared, only too common, and applies to a great many districts not mentioned in these pages. All those who know anything about the industry are aware that inferior animals and suspicious cases are sent out of the way of inspection for the purpose of slaughter, and until the country adopts a universal system this will go on unimpeded. It happens all over the country.)

Meat Inspection. "There are three private slaughterhouses in addition to the public one. 2032 visits were made to these premises for the inspection of meat and supervision of the premises during the year. 120 visits were also made to the cold-storage premises in Shaftesbury Street, and 850 to the Great Western Railway Station.

"11,180 visits were paid during the year to premises of all kinds where foods were prepared or sold.

"Whenever any meat or other article of food was suspected to be unwholesome or diseased the matter was immediately reported to me for further examination, with the result that 37,834 lb. of meat, fish and other foods had to be destroyed as unfit for the food of man. Over thirteen tons of this was butchers' meat, representing in value probably about £800.

"No arrangements exist for the economic utilisation of this food in an adequate way—it was either buried or sent to the chemical works, where it was utilised to a certain extent for the production of artificial manures, &c.

"In Germany they have a better system of disposal of condemned meat. Some of the tubercular meat, and meat which is condemned owing to its liability to rapid decomposition—such as that which is imperfectly bled—is thoroughly cooked or sterilised in a special apparatus at the slaughterhouse, marked, and afterwards sold on special premises; whilst meat which is unfit for human consumption—*e.g.* meat tainted by the products of decomposition—is converted into artificial manure, after extracting the fat for industrial purposes. By these means a considerable amount of money is saved.

"A very careful supervision is exercised over the slaughtering which takes place within the borough; but a considerable amount of meat is slaughtered outside and taken directly to butchers' premises or hawked about the streets. At present it is impossible to exercise proper supervision over food sold in this way. A register is kept of all vendors residing within the borough, but those who come to town from the country and sell meat, poultry, &c., in the streets are neither hawkers nor pedlars,

and therefore are not required to take out licences of any kind. They should certainly be required to obtain permission of the Local Authority to sell perishable articles of food about town, even if they be exempted from paying either taxes or rates.

“ Again, in reference to meat inspection, on the Continent it is required in most towns, particularly in Germany, that all meat intended for sale in the town should be inspected and stamped before offering it for sale. In some towns in both England and Scotland all meat brought in from the country for sale has to be taken to a central place for inspection. As the inspection of slaughterhouses outside the borough of Newport is very imperfectly carried out, it is highly desirable that similar power should be obtained here.

“ INSPECTION OF FOODS

“ I. Reported to Department by Owners

Date, 1908.	Premises.	Description of article.	Disease or other cause.	Wgt. in lb.	Remarks.
Jan. 8	Public slaughterhouse.	Carcase of mutton .	Accident	94	
23	Shop, Watchhouse Par.	48 tins of condensed milk	Decomposed	24	
Feb. 5	Private slaughterhouse	Carcase of a calf .	Emaciated	64	
5	“	1 sheep's pluck .	Abscesses	14	
7	Stall, market .	8 fowls .	Decomposed	40	
8	Private slaughterhouse	Head of a heifer .	Tuberculosis, abscesses in throat	30	
8	G.W.R. Station .	10 boxes of herrings .	Decomposed	2240	
27	Public slaughterhouse.	3 carcasses of porkers .	Tuberculosis	150	
29	“	Bruised beef .	Accident	127	
Mar. 16	“	Carcase of mutton .	“	90	
19	“	“ a cow .	Tuberculosis	749	
27	G.W.R. Station .	40 boxes of haddock fillet	Decomposed	600	
Apl. 11	“	33 “ red herring .	“	495	
16	Public slaughterhouse.	Carcase of mutton .	Accident	60	
16	“	“ a pig .	Blood poisoning	74	
23	G.W.R. Station .	10 boxes of red herrings.	Decomposed	150	
23	“	18 “ kippers .	“	270	
May 8	Private slaughterhouse	Beef .	Accident	80	
June 3	Public “	Organs of a cow, &c. .	“	74	
4	“	“ bullock .	“	30	
4	G.W.R. Goods “ .	8 boxes of kippers .	Decomposed	140	
July 3	Public slaughterhouse.	Carcase of a pig .	Accident	76	
14	Private “	“ cow .	Tuberculosis	590	
23	Public “	Organs of a bullock, &c.	Accident	64	
31	Shop, Evans Street .	Bale of pigs' feet .	Decomposed	224	
Aug. 5	G.W.R. Goods Dept. .	Package of pigs' jowls, &c.	“	264	
Sept. 17	Public slaughterhouse.	Carcase of a pig .	Dropsy	65	
17	G.W.R. Station .	28 boxes of smoked fish.	Decomposed	448	
25	“	5 boxes of fish .	“	560	
30	“	3 “ sprats .	“	360	
Nov. 20	Stores, East Usk Road	420 eggs .	“	26	
25	Shop, High Street .	2 tins of prawns .	“	42	

“INSPECTION OF FOODS
“II. Discovered by Officials

Date.	Premises.	Description of article.	Disease or other cause.	Wgt. in lb.	Remarks.
Jan. 1	Public slaughterhouse.	Carcase of a cow . . .	Tuberculosis	720	
2	" "	2 bullocks' livers . . .	Abscesses	19	
8	" "	Organs of a pig . . .	Inflammation	30	
17	Private "	Carcase of a cow . . .	Tuberculosis	700	
23	Public "	4 cows' livers . . .	Abscesses	36	
24	" "	2 " " . . .	"	18	
24	" "	Carcase of a goat . . .	Emaciated	24	
24	Private slaughterhouse	Carcase of a cow . . .	Tuberculosis	760	Fined £20
28	" "	3 sheep's plucks . . .	Rot	40	
28	Public "	Cow's liver, &c. . .	Abscesses	24	
30	" "	2 cows' livers . . .	"	18	
30	Private "	Sheep's pluck . . .	Rot	8	
Feb. 1	" "	1 cow's liver . . .	Abscesses	8	
3	" "	1 " " . . .	"	8	
4	" "	Organs of a cow . . .	"	20	
6	Stall, market . . .	Cow's liver . . .	"	8	Cautioned
7	Public slaughterhouse.	Organs of a pig . . .	Inflammation	80	
7	" "	3 pigs' plucks . . .	"	40	
7	" "	Carcase of a cow . . .	Tuberculosis	700	
7	Private "	1 carcass of a pig . . .	"	60	
7	" "	" " " " . . .	"	67	
7	Public "	Bullock's liver . . .	Abscesses	8	
8	Stall, market . . .	2 pieces of pig-meat . . .	Semi-decomposed	26	Cautioned
8	" "	Carcass of mutton . . .	Rot	62	"
10	Private slaughterhouse	Sheep's pluck . . .	Rot	14	
12	" "	2 cows' livers . . .	Abscesses	19	
12	" "	2 sheep's organs . . .	Rot	24	
14	" "	2 cows' livers . . .	Abscesses	20	
18	" "	1 sheep's organs . . .	Rot	10	
24	" "	Bullock's organs . . .	Tubercular abscesses	40	
25	Cold Stores, Shaftesbury Street . . .	100 legless carcasses of mutton . . .	Decomposed	4740	Sent up from Cardiff
26	" "	56 legless carcasses of mutton . . .	"	2621	Spoiled cargo
26	" "	4 legs of mutton . . .	"	40	
26	" "	1 lamb . . .	"	30	
26	" "	2 loins of mutton . . .	"	35	
26	" "	247 loins of mutton . . .	"	3143	
26	" "	2 forequarters of beef . . .	"	268	
27	" "	44 loins of mutton . . .	"	567	
27	" "	4 pieces of mutton . . .	"	84	
27	" "	4 rabbits . . .	"	12	
27	" "	10 bullocks' hearts . . .	"	35	
27	" "	4 pieces of beef . . .	"	172	
27	Private slaughterhouse	5 sheep's livers . . .	Rot	20	
27	Public "	1 bullock's liver . . .	Abscesses	8	
Mar. 4	" "	Carcass of a pig . . .	Tuberculosis	127	
6	Cold Stores, Shaftesbury Street . . .	60 pieces of mutton . . .	Decomposed	180	
10	Public slaughterhouse.	Pigs' organs . . .	Inflammation	30	
11	" "	Sheep's organs . . .	Rot	12	
11	" "	Cows' livers . . .	Abscesses	8	
11	" "	" organs . . .	"	28	
11	Shop, Commercial Rd.	4 pigs' plucks . . .	Inflammation	30	Cautioned
13	Private slaughterhouse	Part of a carcass of mutton . . .	Accident	50	
17	Shop, Commercial Rd.	2 pigs' plucks, &c.. . .	Tuberculosis	18	From Bath
17	" "	2 pigs' plucks . . .	"	14	"

“ II Discovered by Officials (continued)

Date.	Premises.	Description of article.	Disease or other cause.	Wgt. in lb.	Remarks.
Mar. 17	Shop, Commercial Rd.	1 pig's pluck . . .	Tuberculosis	7	From Bath
19	Private slaughterhouse	1 cow's liver . . .	Abscesses	8	
27	" "	Carcase of a cow . . .	Tuberculosis		
28	Public "	" " . . .	Actinomy- cosis	702 450	
28	" "	Mutton . . .	Bruised	24	
28	" "	Cow's liver . . .	Abscesses	8	
30	Private "	" " . . .	"	8	
Apr. 3	Public slaughterhouse.	Carcase of a cow . . .	Tuberculosis	614	
4	Private "	Organs of a cow . . .	Abscesses	20	
11	" "	3 sheep's livers . . .	Fluke *	16	
11	" "	1 cow's liver . . .	Abscesses	8	
11	" "	Part of a carcase of mutton . . .	Accident	30	
14	" "	Cow's organs . . .	Abscesses	20	
16	" "	" liver . . .	"	8	
23	G.W.R. Station	Carcase of a pig . . .	" Redwater"	300	
30	Public slaughterhouse.	" " . . .	Inflammation	58	
May 8	G.W.R. Station	24 boxes of haddock fillets	Decomposed	360	
11	Public slaughterhouse.	2 carcasses of mutton . . .	Accident	120	
11	Private "	Cow's organs . . .	Abscesses	30	
11	" "	" liver . . .	"	8	
20	" "	Organs of a cow . . .	"	32	
21	G.W.R. Station	8 boxes of fish . . .	Decomposed	920	
25	Private slaughterhouse	Beef, bruised . . .	Accident	80	
28	" "	" " . . .	"	196	
June 3	G.W.R. Station	8 "boxes" of mackerel . . .	Decomposed	720	
12	Private slaughterhouse	Organs of a cow . . .	Abscesses	34	
13	" "	Cow's liver . . .	"	8	
18	" "	Organs of a cow . . .	"	40	
25	Public "	" " &c. . .	Tubercular abscesses	56	
July 2	" "	Carcase of a sheep. . .	Accident	81	
3	" "	Organs of a bullock, &c..	Tubercular abscesses	96	
10	" "	Carcase of a cow . . .	Tuberculosis	800	
16	Private "	Cow's liver . . .	Abscesses	8	
16	" "	" lungs . . .	Inflammation	10	
17	" "	3 sheep's livers . . .	Flukes	9	
23	Public "	Organs of a bullock . . .	Tubercular abscesses	34	
27	Private "	2 cows' liver . . .	"	18	
Aug. 5	" "	Cow's liver . . .	Abscesses	8	
10	Public "	" " . . .	"	8	
10	G.W.R. Station	2 kits of fish . . .	Decomposed	200	
13	Public slaughterhouse.	3 cows' livers . . .	Abscesses	24	
14	Private "	Organs of a cow . . .	Tubercular abscesses	34	
21	Public "	1 bullock's liver . . .	" " 2, 4	8	
21	" "	2 sheep's livers . . .	Flukes	6	
21	" "	Skin of a pig . . .	Ringworm	18	
24	Private "	Cow's liver . . .	Abscesses	8	
25	" "	Sheep's pluck . . .	Rot *	7	
27	" "	Cow's liver . . .	Abscesses	8	
28	Public "	2 bullocks' livers . . .	"	16	
28	" "	2 cows' livers . . .	"	16	
28	" "	2 sheep's livers . . .	Flukes	7	
Sept. 2	Private "	Organs of a cow . . .	Tubercular abscesses	40	
3	" "	" " . . .	"	38	
3	" "	Carcase of a cow . . .	Tuberculosis	480	
8	" "	" " . . .	"	640	

" II. Discovered by Officials (continued)

Date.	Premises.	Description of article.	Disease or other cause.	Wgt. in lb.	Remarks
Sept. 8	Public	Carcase of a sheep.	Rot	38	
8	"	"	Accident	68	
10	Private	" cow	Tuberculosis	700	
10	Public	2 bullocks' livers	Tubercular abscesses	18	
10	"	2 cows' livers	"	16	
10	"	6 sheep's livers	Rot	18	
11	Private	3	"	9	
12	"	1 cow's liver	Abscesses	8	
14	"	Organs of a cow	Tubercular abscesses	37	
17	"	"	"	26	
18	"	2 bullocks' livers	"	18	
18	"	5 sheep's livers	Flukes	16	
18	"	1 pig's lungs	Inflammation	3	
18	"	4 sheep's livers	Flukes	12	
19	"	2	"	6	
19	"	2 cows' livers	Tubercular abscesses	16	
24	"	3 sheep's livers	Flukes	9	
29	"	Organs of a cow	Tubercular abscesses	20	
30	"	Cow's udder	Abscesses	10	
30	Public	Carcase of a pig	Accident	180	
30	"	" mutton.	"	59	
Oct. 1	Private	2 cows' livers	Tubercular abscesses	16	
1	Public	Carcase of a cow	Tuberculosis	800	
2	Private	1 sheep's liver	Flukes	3	
2	G.W.R. Goods	2 bags of cockles	Decomposed	224	
2	Public	1 cow's liver	Abscesses	8	
5	Private	Cow's liver	"	8	
6	"	Organs of a cow	Tubercular abscesses	29	
7	Public	Bullock's liver	Abscesses	8	
7	"	2 sheep's livers	Flukes	6	
7	Private	2 cows' livers	Abscesses	18	
10	"	Organs of a cow	Tubercular abscesses	29	
14	Public	Carcase of a cow	Tuberculosis	700	
16	G.W.R. Goods	1 box of fore-hams	Decomposed	38	
19	" Station	Kit of fish	"	112	
19	"	"	"	40	
21	Private	Box of fish	Flukes, &c.	8	
22	"	Sheep's pluck	Abscesses	8	
23	"	Cow's liver	{ Tubercular }	34	
23	"	Organs of a cow	{ abscesses }		
23	Public	Bullock's liver	Abscesses	8	
23	"	Carcase of a pig	Accident	80	
23	Private	2 sheep's livers	Flukes	5	
27	Public	Carcase of a pig	Inflammation	45	
27	"	Organs of a pig	"	12	
27	"	Carcase of a cow	Emaciated	550	
28	Private	"	Tuberculosis	680	
29	Public	2 pigs' plucks	Inflammation	14	
29	Private	Cow's liver	Abscesses	8	
30	"	2 sheep's plucks	"	17	
31	Public	Carcase of mutton.	Accident	56	
Nov. 3	Private	Cow's lungs	Inflammation	8	
4	Public	" liver	Abscesses	8	
6	"	2 pigs' livers.	"	6	
9	Private	3 sheep's livers	"	9	

“ II. Discovered by Officials (continued)

Date.	Premises.	Description of article.	Disease or other cause	Wgt. in lb.	Remarks.
Nov. 11	Public	Cow's liver	Abscesses	8	
12	"	3 pigs' livers.	"	12	
13	"	5 sheep's livers	Flukes	16	
14	"	Calf	Accident	86	
16	"	2 sheep's livers	Flukes	7	
17	Private	2 "	"	7	
18	"	Organs of a cow	Tubercular abscesses	29	
19	"	Cow's udder, &c.	"	16	
20	Public	Organs of a cow	"	29	
20	Private	8 sheep's livers	Flukes	36	
20	"	1 pig's liver	Abscesses	3	
20	Public	5 cows' livers	"	40	
20	Private	5 sheep's livers	Flukes	16	
Dec. 3	Public	4 "	"	13	
5	"	Carcase of bullock	Accident	900	
5	Private	5 sheep's livers	Flukes	17	
5	Public	3 cow's livers	Abscesses	24	
8	"	2 sheep's livers	Flukes	6	
9	"	Sheep's pluck	"	7	
11	Private	"	"	7	
11	"	2 sheep's pluck	"	14	
12	"	1 cow's liver	Abscesses	7	
23	Public	Carcase of mutton.	Rot	30	
23	"	Cow's liver	Abscesses	5	
23	Private	"	"	7	
31	"	"	"	8	
31	Public	2 sheep's livers	Flukes	6	

* In these tables "rot" and "flake" both refer to distomatosis, the former implying emaciation, the latter local hepatic disease.

“ III. Summary of Meat and other Foods Condemned and Destroyed

Unsound meat and other foods.	At public slaughterhouse.	At private slaughterhouse.	At provision market.	At ice stores.	At G.W.R. station.	At other premises.	Total.
Destroyed at owner's request	—	—	—	—	—	—	—
Reported to department by owners for inspection	1,653	778	40	—	5,527	316	8,314
Discovered by officials (not reported by owners)	8,123	5,631	96	11,927	2,914	69	28,760
Seized and condemned by a magistrate	760	—	—	—	—	—	760
Total (in lb.)	10,536	6,409	136	11,927	8,441	385	37,834

"Totals: Beef, 15,027 lb. (19 whole carcasses); mutton, 12,683 lb. (13 whole carcasses); pig-meat, 2141 lb. (14 whole carcasses); fish, 7881 lb.; poultry and game, 52 lb.; eggs, 26 lb.; condensed milk, 24 lb.

"Grand total . . . 37,834 lb."

Public Slaughterhouse. "The number of animals slaughtered at the above establishment {December 1907 to December 1908, were as follows: Beasts, 2833; calves, 1206; pigs, 10,153; sheep, 9946; and lambs, 5920; giving a total of 30,958 animals for the year compared with 22,729 in 1907."

The following form is used for meat seized:

"MEDICAL OFFICER OF HEALTH'S DEPARTMENT,

"Town Hall,

"Newport.

.....19

"To.....

"SIR,—I have to inform you that I have this..... day of.....19 , seized (under the 28th Section Public Health Amendment Act, 1890) at the..... Slaughterhouse, situate at..... in the County Borough of Newport, the..... of a..... belonging to you, and unless within..... hours you consent to its destruction, which you may do by signing the form below, I shall apply to a magistrate for an order for that purpose, and proceedings will be taken against you in the Police Court.

"I am,

"Your obedient Servant,

.....

"Form for Consent to Destruction of Meat

"I.....consent to the destruction of the above quantity of.....by the Officials of the Sanitary Authority for the County Borough of Newport.

"(Signed).....

"Date....."

Private Slaughterhouses. "There are still three of these places within the borough. 1679 inspections were made of them compared with 944 last year. They are in a fairly good sanitary condition, and it was only necessary to serve two notices—one for dirty premises and one for choked drain. They were visited every morning before seven and often in the evening, because much of the slaughtering in the summer months is done at these times."

Public Abattoir. "247 inspections were made for the purpose of meat inspection."

Inspection of Foods. "The following is the number of visits made other than those to registered premises: Butchers' premises, 4126; provision shops, 1437; provision market, 991; fish and fruit premises, 1436; cold-storage premises, 120; cattle market, 69; G.W.R.

Station, 840 ; ice-cream makers, 92 ; and piggeries, 10. Total 9192 visits ; besides 27 re-visits. Nine notices were served for the abatement of twelve nuisances on ice-cream makers' premises. 37,834 lb. of meat, fish, and other foods were condemned and destroyed during the year, after examination by the M.O.H. (*vide* Tables) compared with 13,225 lb. last year. Although the owners in every instance signed the form giving their consent to the destruction of the condemned article, it was necessary to administer cautions on five occasions, and to prosecute in one instance, when the defendant was fined £20 for depositing tuberculous meat for sale. 10,536 lb. of the condemned meat were at the public slaughterhouse, and 27,298 lb. of the condemned meat and other foods were on private premises, namely : ice stores, 11,927 lb. ; G.W.R. Station, 8441 lb. ; provision market, 136 lb. ; private slaughterhouses, 6409 lb. ; and on other premises, 385 lb."

BRISTOL

We are indebted to Dr. Davies, M.O.H., for the following information concerning the position in Bristol, from which it will be seen that, in spite of the fact that he presented a report as long ago as November 1899 on slaughterhouses, the city is still without municipal abattoirs. In that year there were no fewer than 118 slaughterhouses in the city, and from the report of 1908 the number is seen to be 107, so that the diminution is very slight in the nine years elapsing. In his 1899 Report Dr. Davies states :

"The slaughtering of animals within the city of Bristol is carried out in 120 slaughterhouses, two of which belong to the Docks Committee ; the remaining 118 belong to private owners. There is no public abattoir.*

"The Docks Committee's slaughterhouses at Hotwells and Avonmouth are devoted to the slaughter of imported cattle, and during 1898 the number of animals killed therein amounted to :

Oxen.		Sheep.		Pigs.
18,632	..	1,325	..	—

"In the 118 slaughterhouses belonging to private owners the following figures, prepared from a careful estimate made by Inspectors Thomas and Gitsham, show the amount of slaughtering carried on yearly :

Oxen.		Sheep.		Pigs.
31,610	..	71,684	..	130,488

or a total of 253,739 animals, of which large numbers of pigs especially are destined for outside consumption, as Bristol is a large distributing centre for this traffic."

Dr. Davies then gives an excellent summary of the conditions necessary for a fit and proper slaughterhouse, and thus describes some of the conditions existing at the time :

* The use of six slaughterhouses has been discontinued since the issue of the 1895 Report, and thirty-nine have been added by the extension of the city boundaries in 1897.

The Inspector's Report on Slaughterhouses. "During the past year (1898-99) a careful survey has again been made of all the existing slaughterhouses, with the view of recording for your Authority's information the degree in which each slaughterhouse complied structurally with the requirements formulated by the L.G.B., and generally accepted as essential.

"As to general structural fitness, I have classified the private slaughterhouses into three groups: under Class A, entirely complying with structural requirements; Class B, complying in the more essential points; and Class C, not complying in essential points. This classification has no reference to the method of conduct of the business.

"No private slaughterhouse in the city can be placed in Class A, sixty-nine come in Class B, and forty-nine in Class C.

"The slaughterhouses are not distributed equally over the city, most of them are disposed along West Street (St. Philip) and East Street, Bedminster, the two chief lines of approach from the country districts east and south of the city, and therefore conveniently situated for farmers and drovers. They occupy, as a rule, what was formerly the back yard or back garden of houses fronting the road. In the case of many of the smaller premises, the back yard has been converted into a slaughterhouse by the simple expedient of raising the side walls unequally and throwing across them a slanting roof, leaving a few feet of space between one end of this structure and the house to admit light to the parlour window. As one result of this method of adaptation, the yard-pump, the privy, the yard sink and the steps down to the cellar, are often, one or all, inside the slaughterhouse, while the back door of the house and the parlour window open directly upon it.

"The floors of the slaughterhouses are generally paved with flagstones, which, while suitable as a paving in some respects and admitting of ready surface cleansing, are apt to give at the joints, and thus to allow blood and scouring-water to reach and percolate into the soil, to be afterwards recognised as animal pollution in the water of the adjacent wells. If properly laid on concrete and well jointed, however, this makes a good paving and is not slippery.

"In many cases the lairs for the animals to be slaughtered are in the slaughterhouse, being merely partitioned off from one end; and in these cases they drain by a shallow channel across the floor of the slaughterhouse to the yard sink."

Defective Structural Arrangements. "One consequence of this common structural arrangement is that the meat is thus exposed for some time to the effluvia from the manure of the animals in the lairs. It is obvious that, from common considerations of well-ordered cleanliness, the carcasses of slaughtered animals should be kept, from the moment they are dressed, in places as well ventilated and free from effluvia as an ordinary larder.

"The climax of structural derangement is apparently reached in a slaughterhouse, a clean and well-kept one too, the only approach to

which is through the general sitting-room. When slaughtering-day comes, the furniture is removed to make way for the animals, and the occupier appears to regard this periodical house-moving as an ordinary event of business routine.

“The disadvantages caused by such structural defects are in no wise to be surmounted by the application of bylaws, and many of the occupiers of unfit slaughterhouses do all in their power to comply with the regulations and to conduct their business properly. For their own credit they should have the opportunity of working in proper and suitable premises.

“The bylaws in force in Bristol lay down excellent rules for the regulation of the business of slaughtering, but none enabling radical Model structural defects to be remedied, and the L.G.B., whose Code of Bylaws is very similar to our own, with the addition of licensing and registration forms (1 to 5) and clauses tending to prevent cruelty (7 to 8), are of opinion that the statutory terms do not warrant the extension of the scope of the bylaws to regulations directly affecting the structure of the premises.”

The Advantages of a Public Abattoir. “(1) As slaughtering and its attendant industries are offensive or liable to become so, or are of such a nature as to require jealous watching and careful administration to prevent them becoming injurious to health, it is clearly desirable to minimise the number of such establishments.

“Where a large number of the places in use are structurally unfit for the purpose, the difficulty of preventing offensive nuisance is *pro tanto* increased.

“(2) The difficulties in the way of inspection and the prevention of the sale of unsound meat are greatly increased when supervision has to be extended to a multitude of small out-of-the-way places, numbering as they now do in this city, 118. Such conditions afford facilities for the disposal of unsound meat, which are practically beyond the control of inspectors.*

“(3) Practical experience confirms the view that more economy and greater efficiency are obtained by centralising the trade in one well-conducted establishment than can be looked for when every butcher slaughters in his own more or less ill-adapted back premises at irregular intervals to meet the requirements of a small retail trade.

“(4) With the prompt and multiplied means of transit now available, the necessity for private slaughterhouses in towns is very much lessened.”

The Necessity of Public Control. “In the case of Bristol, as a large distributing centre, every means should be taken to render the control of the meat-supply efficient and complete. To this end there is manifest advantage in keeping slaughterhouses as directly as possible under the control and supervision of the Sanitary Authority and their officers, a control which must be less absolute in the case of many and scattered

* If this was found to be the case in Liverpool, where six special meat inspectors are employed, it follows that the supervision of two inspectors only in this city is at a yet greater disadvantage.

private slaughterhouses than in the case of an abattoir owned by the Sanitary Authority themselves.

“In the case of Avonmouth and Hotwells, where foreign cattle are slaughtered, this facility of inspection and control is to be secured ; but it is otherwise in the case of that part of the meat-supply which is derived from the markets and fairs of the various market centres of the counties of Somerset, Gloucester, and Wilts. So far as we can learn, the inspection of cattle and pigs in these places is performed by the local policeman, whose special knowledge may not equal his good intentions. From Wiltshire most of the animals come by rail, but from most of the Somerset markets the animals are driven in, and in cases where the market is at such a distance that they do not arrive in Bristol till late at night or in the early hours of the morning, it is plain that it is possible for diseased meat to find its way into the shops of Bristol before, under the existing system, there has been a chance to inspect either cattle or carcase, and this without any necessarily wilful attempt to introduce meat unfit for food. The point is that in certain diseases of animals, *e.g.* tubercle, communicable to man, it is impossible, from an inspection of the animal, or of part of the carcase alone, to determine the presence or absence of disease. The viscera must also be properly examined to afford certain information. As human consumption (tuberculosis) is believed in many cases to be due to infection through the alimentary tract, this accentuates the necessity for an effectual control of the meat-supply.”

Inspection of Meat—Prevalence of Swine Fever. “During the autumn of 1894 our attention was directed by an inspector of the Board of Agriculture to the prevalence of swine fever in Somersetshire, and he pointed out on behalf of the Board that, although a large number of pigs are brought to Bristol from Ireland, they never get notice of swine fever having been discovered in any of the pigs so landed, whereas the Board have constantly had notice from the inspectors of Liverpool of swine fever having been found in pigs imported from Ireland, and most of the cases so reported have been discovered in the abattoirs. The inspector, writing under date October 10, 1894, further points out: ‘It would appear, owing to the number of slaughterhouses in Bristol, and to the fact that there is only one meat inspector to look after not only all these separate slaughterhouses, but also fruit and vegetables as well, that there is not the same probability of swine fever being detected in Bristol as there is in Liverpool.’

“The aim, in the erection of a public abattoir, is, then, to allow of the removal of private slaughterhouses situated in crowded localities or otherwise unsuitable for the purpose, and of the transference of the business to more suitable surroundings with greater convenience to the butchers ; and in this way also to concentrate the business under efficient control.

“In the absence of compulsory powers to prevent slaughtering animals elsewhere than in abattoirs provided by the Sanitary Authority, there are no means provided in the Public Health Acts by which the

discontinuance of a slaughterhouse, registered or licensed previous to 1890, can be secured, except upon conviction under section 129 of the Towns Improvement Clauses Act for breach of the Acts and bylaws.

“ But it does not appear that any real difficulty would be likely to arise in securing the use, by the occupiers of structurally unfit slaughterhouses, of a public abattoir at a convenient spot. In many towns where they have been provided, no insuperable difficulties have been found in securing their use, and in all towns there appears to be but one opinion, and that greatly in favour of their utility and advantages in securing effectual supervision of the meat-supply.”

The Report Summarised. Finally, Dr. Davies summarises his Report as follows :

“ In conclusion I submit :

“ (1) That the condition of about half the 118 city slaughterhouses is unsatisfactory.

“ (2) That this unsatisfactory condition is due chiefly to structural defects, which are incapable of remedy.

“ (3) That the scattered situation of the slaughterhouses prohibits effectual supervision, and lends opportunity to the introduction and sale of unsound meat. The medical officers of towns where abattoirs are provided agree that they are invaluable in respect of securing proper control of the meat-supply.

“ (4) That many of the occupiers of unfit slaughterhouses would be glad to avail themselves of a convenient and accessible public slaughterhouse, as it would be to their greater convenience and as there they could more readily comply with the stringent enforcement of the bylaws, which would follow the provision of a proper abattoir.

“ (5) That the experience of other towns, now accumulating, shows that public abattoirs are paying their way and becoming appreciated, and that the opposition to them is by no means insuperable, nor apparently very deep seated.

“ (6) That it is advisable to erect such an abattoir on an area sufficiently large to permit of the erection of slaughterhouses to deal with 90,000 head of oxen, sheep, and pigs annually, part to be at first erected, to be duplicated as required.

“ (7) That a suitable spot for such slaughterhouse should be near a railway line so as to provide facilities for cattle-sidings, &c.

“ (8) That the erection of such an abattoir would be of financial benefit to the city, for where abattoirs are established they are found to be successful. From returns published it appears the one at Bradford pays 6 per cent., the Manchester one not less than 4 per cent., and the Birkenhead one not less than 5 per cent.”

Report for 1908. Coming now to Dr. Davies's Report for 1908, we quote the following paragraphs from that portion supplied by the Chief Inspector of Nuisances :

“ **Slaughterhouses** now number 107, as against 114 last year, viz., sixty-five with permanent licences, one for foreign animals at Avonmouth

Docks and two knackers' yards. During the past year six of the old licensed slaughterhouses have been closed and the premises used for other purposes ; also the foreign animal slaughterhouse at Cumberland Basin has been closed, in consequence of the fact that the importation of foreign animals to the city docks has ceased—which is very regrettable.

“ Your committee's two inspectors of meat, fish, &c., during the year have been responsible for the destruction of 27 tons 9 cwt. 3 qr. and 9 lb. of meat of various kinds which were unfit for food, consisting of :

“ The entire carcasses of 24 beasts.

“	“	41 sheep.
“	“	110 pigs.
“	“	4 calves.

“ The remainder consisting of parts of carcasses and odd pieces of meat, internal organs, &c.

“ There were also destroyed for the same reason, 921 rabbits, 907 packages of fish (not weighed), 437 packages of vegetables, 190 packages of fruit of various kinds, 40 lb. of cheese and 20 tons of potatoes, none of which were seized under the Public Health Act except the potatoes, which were imported from Hamburg, and a magistrate's order had to be obtained for their destruction, but no prosecutions followed as they had been delayed and damaged in transit and there was great difficulty in proving ownership.

“ The question of providing public abattoirs does not appear to be making much headway, for which I am very sorry, for in my opinion the inspection of meat cannot possibly be considered adequate or complete unless the entire carcase of every animal slaughtered, with the whole of the internal organs, has been inspected before any part of it is exposed for sale, but this is quite impossible for two inspectors to do with 107 private slaughterhouses scattered all over the city. I again bear testimony to the fact that almost all the butchers in a large way of business and the whole of the bacon-curers in the city, whenever they have a suspicious carcase which the inspector has not seen, send to the office and put the carcase on one side until it has been inspected, and then, if found to be diseased or unfit, surrender it without further trouble.”

HEREFORD

The county of Herefordshire is one of the largest cattle-breeding centres in the country, and in Hereford itself there is held a large cattle market which is visited on market days by a veterinary surgeon who reports any diseased animals. Dr. J. W. Miller, M.O.H., writes : “ There is a large public abattoir. The lairages are arranged parallel with the slaughterhouses. The floors of both lairages and slaughterhouses are of concrete, and the lower portion of the walls covered with black varnish so as to form a smooth surface which can easily be washed down. There are special traps with iron buckets to intercept any solid matter arranged on either side of the main roadway, to which is connected a drain, not

trapped, from each slaughterhouse. There is no meat market in the city, but there are thirty-four stalls for the sale of meat at one end of the large market hall, of which nineteen are used by eleven butchers at the present time. A veterinary surgeon attends once a week at the cattle market and reports on any diseased animal. The public slaughterhouses and lairages are under the superintendence of a manager, who has also charge of the Corporation Yard, and he reports any case of diseased meat, &c., to this office. The carcass is then seen either by the sanitary inspector or myself (I usually see the carcass myself), and, in any case of doubt, a veterinary surgeon is called in. The two private slaughterhouses are periodically visited by the inspector or myself. The market hall is under the supervision of a market inspector, who reports any case of diseased or unsound meat. The butchers' shops are visited periodically by the sanitary inspector."

The following paragraphs are from Dr. Miller's report for 1908, and we are indebted to him for them :

Slaughterhouses. "The city is fortunate in possessing a public slaughterhouse with ample accommodation. The ventilation is good, the floors are well laid in concrete and, being hard and impervious, are easily cleaned. The walls present a smooth surface and are readily washed down.

"The accommodation is as follows :

		ft.	in.	ft.	in.	Area in feet.
" 10 slaughterhouses	.	14	9	by	19 9	2913
2	„	29	6	„	19 9	1165
*1	„	19	0	„	18 0	342
Total	.	.	.	.	.	4420

"At the time of writing the question of transferring the gut-scraping business, which at present occupies one of the slaughterhouses, to a new building in another part of the grounds was under discussion by your Watch and Markets Committee. This would leave additional accommodation (included in the above), which is necessary on account of the closing of several of the private slaughterhouses in 1907. The question of providing cooling-rooms has not yet been decided."

Lairage Accommodation. "The lairage accommodation in connection with the public slaughterhouse is as follows :

Description.	ft.	in.	Size. ft. in.	Area sq. ft.	Accommoda- tion.
" 17 cattle lairages .	11	0	by 13 0	2431	72 cattle in a day.
1 „ lairage .	11	0	„ 14 3	157	
†4 sheep and lamb lairages	11	0	„ 14 0	616	{ 140 sheep and lambs.
4 pig lairages .	11	0	„ 14 0	616	
6 pig-styes .	15	0	„ 8 0	720	50 pigs.
Total	.	.	.	4540	36 „

* At present used as a general store.

† One of these is used as a bacon lairage during the winter months. Accommodation for fourteen pigs.

Private Slaughterhouses. "There are only two private slaughterhouses in the city.

"It was only necessary on three occasions during 1908 to draw attention to contraventions of the bylaws. In the case of one of the slaughterhouses, new tenants occupied the premises, and in accordance with sect. 30, Public Health Acts Amendment Act, 1890, notice was received of this. During the year ninety-three visits were paid to slaughterhouses.

"The public slaughterhouse was used by nineteen butchers, fourteen occasional butchers and twelve other persons for slaughtering pigs.

"The following Tables show the number of animals slaughtered during last year and in the eight preceding years :

1908.	Beeves.	Calves.	Sheep.	Lambs.	Pigs (pork).	Pigs (bacon).	Total.
January . . .	102	10	365	—	149	86	712
February . . .	113	11	435	—	154	74	787
March . . .	126	40	471	3	164	69	873
April . . .	119	58	462	58	145	28	870
May . . .	149	79	593	196	113	7	1,137
June . . .	110	61	415	303	34	—	923
July . . .	100	61	389	311	25	—	886
August . . .	137	54	485	442	68	1	1,187
September . . .	116	19	332	272	167	1	907
October . . .	161	19	687	48	236	12	1,163
November . . .	126	9	527	—	167	85	914
December . . .	133	7	447	—	157	77	821
Total for 1908 . . .	1492	428	5608	1633	1579	440	11,180

YEARS 1900-1907

Year.	Beeves.	Calves.	Sheep.	Lambs.	Pigs (pork).	Pigs (bacon).	Total.
1900 . . .	959	429	4,441	1,131	1,405	149	8,514
1901 . . .	1122	432	4,401	1,139	1,100	113	8,307
1902 . . .	1183	424	4,760	1,385	1,198	164	9,114
1903 . . .	1142	338	5,002	1,391	1,338	508	9,719
1904 . . .	1146	358	5,222	1,572	1,366	380	10,044
1905 . . .	1289	410	4,780	1,309	1,225	391	9,404
1906 . . .	1289	462	4,917	1,302	1,150	377	9,497
1907 . . .	1283	444	4,711	1,343	1,300	506	9,587
Total for 8 years, 1900 to 1907 . . .	9413	3297	38,234	10,572	10,082	2588	74,186
Average for do. . .	1176	412	4,779	1,321	1,260	323	9,273

Diseased Carcasses, &c. "Attention was drawn by the manager to the following diseased conditions in animals during the year :

"(1) A bullock showed signs of enteritis and general wasting.

"(2) Examination of a sheep which had died in the city pound showed signs of pneumonia ; two other sheep (3) and (4) also died in the pound, the former a few hours after being placed there from pneumonia, the latter from enteritis and peritonitis.

"(5) Another sheep showed signs of peritonitis.

"(6) Evidence of slight inflammation of the lungs was found in a calf.

"(7) A lamb killed in the slaughterhouse showed localised inflammation of the abdomen.

"(8) A sheep killed and dressed showed extensive bruising about the hind quarters. The bruised portion was cut away and destroyed ; weight, 10 lb.

"(9) A calf brought in already killed showed signs of enteritis.

"The carcasses were burnt at the destructor ; all were voluntarily surrendered.

"The small amount of disease amongst the animals slaughtered and the absence of tuberculosis are very satisfactory."

Other Unsound Food. "Three boxes each of kippers, haddock, and mackerel, and a cod-fish weighing 15 lb., all belonging to the same person were voluntarily surrendered and destroyed."

EXETER

Dr. E. Brash, M.O.H., from whose annual report for 1908 the following extracts are made, informs us that there is "a systematic inspection of all slaughterhouses at irregular times. The caretaker in charge of the public abattoir is a practical butcher, and if he notices anything abnormal he at once reports it to the chief sanitary inspector, who inspects and reports to me ; if necessary I inspect and finally decide what action is to be taken. If there is any doubt as to the disease an animal may have been suffering from, I always take the opinion of the veterinary inspector, who is employed to inspect the animals brought for sale at the weekly cattle market. I find this system works very well, and that we have no difficulty in dealing with the butchers or the trade in general."

Slaughterhouses. "During the past year the nine slaughterhouses in the city have been regularly inspected, and found to be kept in accordance with the bylaws. The experience of the present year still more confirms my opinion that the time has arrived when the question of the abolition of private slaughterhouses should be dealt with by the Government, and that it should be compulsory that all animals intended for human food should be slaughtered under public supervision. Our experience is that the closer the supervision exercised in the city, the more the tendency is for animals of a doubtful character to be killed outside.

"In the inspection of carcasses affected with tuberculosis, the recom-

mendations of the Royal Commission are strictly adhered to. From the apparent condition of many of the animals that were afterwards condemned, I am strongly of opinion that before this disease can effectually be dealt with some scheme of imperial compensation will have to be devised. In the meantime some arrangement of insurance should be arranged between buyer and seller, and from the experience gained where this is practised it appears to be carried out at a small cost."

Public Abattoir and Private Slaughterhouses. "The nine (registered) private slaughterhouses have been kept under close supervision, and there has been no difficulty in keeping them in accordance with the by-laws. The work in connection with the inspection of meat is becoming more and more, and I find that a considerable portion of my time is taken up in this direction. Several of the occupiers of private slaughterhouses make it a practice to call me in whenever there is the slightest abnormal sign in the carcase or internal organs, and I am pleased to say that in all cases my opinion has been accepted.

"During the year seven carcasses of bullocks were seized at the public abattoir on account of generalised tuberculosis and condemned. From the number of bullocks killed I find that the number condemned on account of generalised tuberculosis works out to just over three per thousand; taking into consideration the age and class of some of the beasts, this is very low.

"It is only fair to say that in no case has any of the carcasses seized been emaciated, while, on the other hand, many have been of excellent quality and apparently in the best of condition.

"I wish that some system similar to that which is carried out in Germany, where meat of this class is cooked under Government supervision and sold at a special stall called a Freibank, could be adopted in England. Special precautions are taken in the sale of the meat, whether the sale takes place at the abattoir or at a shop in the city, a notice must be clearly written over the place as to the class of meat sold. Such meat must not be purchased by butchers or restaurant proprietors.

"At first the authorities were doubtful whether there would be any public demand for such meat, but experience has proved there is, and now the demand is greater than the supply.

"The following figures will show the number of animals slaughtered at the public abattoir and the fees earned during the year 1908:

				Numbers slaughtered.		Fees earned.		
" Bullocks	.	.	.	2,185	..	£109	5	0
Calves	.	.	.	758	..	12	12	8
Sheep	.	.	.	5,535	..	46	2	6
Pigs	.	.	.	2,042	..	51	1	0
Total	.	.	.	10,520	..	£219	1	2

"The charges for the use of the premises for slaughtering are: bullocks, 1s. ; pig, 6d. ; calf, 4d. ; sheep, 2d."

Unsound Meat, Vegetables, &c. "Particular attention has again been given to the inspection of all kinds of food, and to the premises where such are prepared. There have been thirty-four seizures of unsound food. This includes thirty carcasses and six parts of carcasses. Eleven of the carcasses seized were condemned on account of generalised tuberculosis, and consisted of the carcasses of eight cows, one steer and two pigs.

"The following is a summary of unsound food seized and proceedings taken during the year 1908 :

No.	Nature of seizure.	Cause of seizure.	Result.	Proceedings taken and result.
1	Carcase of a sheep.	Abscesses in lungs	Condemned	Destroyed
2	" "	" "	"	"
3	" a cow	Generalised tuberculosis.	"	"
4	" "	" "	"	"
5	" a pig	Kidney disease	"	"
6	" two pigs	Generalised tuberculosis.	"	"
7	" a sheep.	Diseased liver and lungs and emaciated	"	"
8	" "	Lung disease	"	"
9	" a cow	Generalised tuberculosis.	"	"
10	" a pig	Urticaria	"	"
11	" a sheep.	Pneumonia	"	"
12	" two sheep	Liver flukes and emaciated	"	"
13	" a cow	Unwholesome, accident	"	"
14	" "	Generalised tuberculosis.	"	"
15	" a heifer	" "	"	"
16	" a calf	Kidney disease and dropsy	"	"
17	" a lamb	Pleurisy	"	"
18	" a cow	Generalised tuberculosis.	"	"
19	" "	" "	"	"
20	Portions of the carcase of a cow	Bruised, having been knocked down by a train	Surrendered	"
21	Carcase of a sheep.	Inflammation	Condemned	"
22	" a lamb	Emaciated	"	"
23	" a sheep.	Lung disease	"	"
24	" a cow	Generalised tuberculosis.	"	"
25	Three-quarters of the carcase of a bull	Quarter evil	"	"
26	Carcase of a cow	Generalised tuberculosis.	"	"
27	" a ram	Slaughtered when moribund	"	"
28	" a steer	Generalised tuberculosis.	"	"
29	" a pig	Fever	"	"
30	" a cow	Diseased liver and peritoneal inflammation	"	"
31	Seven sheep's livers	Coccidia	Surrendered	"
32	Lungs and tongue of a cow	Tuberculosis	"	"
33	Left fore-quarter of the carcase of a cow	Localised tuberculosis	Condemned	"
34	Two legs of mutton	Sheep had been worried by dogs	Surrendered	"

NORWICH

We are indebted to Dr. H. Cooper Pattin, M.O.H., for the following information relative to meat inspection in that city for the year 1908. A feature of the items in the list of foods seized is the variety of fish and shell-fish mentioned.

"The method of inspection adopted in Norwich for the inspection of slaughterhouses, meat and fish markets, is as follows: The city is divided into five districts; in each is a certified inspector, who visits all the slaughterhouses once a week and *some* slaughterhouses twice and three times per week. There is also an inspector who holds a meat-inspector's certificate, and who visits on killing days *all* the slaughterhouses in the city."

Slaughterhouses and Markets. "Number of registered and licensed slaughterhouses, thirty-nine. 2536 visits have been paid to slaughterhouses. It was found necessary to caution several occupiers of slaughterhouses respecting the dirty condition of the walls and floors, and the non-removal of refuse in accordance with the slaughterhouse bylaws.

"The fish market has been visited and inspected daily, and the vegetable, fruit, and provision markets on market days. The inspectors on duty every Saturday evening for the purpose of inspecting the meat, poultry, fish, &c., exposed for sale in the provision market, and for examining articles of food exposed for sale in the poorer parts of the city, have on several occasions found it necessary to deal with various articles of food which were in a condition unfit for the food of man, and such articles have been included in the under-mentioned list of unsound food."

Unsound Food. "The following have been destroyed as being unfit for human food, with the consent of the owners:

" 15 carcasses of mutton.
 5 ,, beef.
 3 ,, pork.
 2 ,, veal.
 3 hind-quarters of mutton.
 2 quarters of beef.
 1 fore-quarter of pork.
 28 ox livers.
 7 sets of ox lungs.
 1 ox kidney.
 1 ox tongue.
 1 pig's pluck.
 1 crown fat
 177 boxes of kippers.
 60 bags of shrimps.
 25 ,, mussels.
 1½ cwt. mussels.
 13 salmon.

12 bags of cockles.
 11 boxes of roes.
 10 „ mackerel.
 8 barrels of crabs.
 6 boxes of filleted haddock.
 5 „ cod.
 4 „ catfish.
 3 „ colefish.
 3 „ haddocks.
 2 peds of crayfish.
 1 case of salmon.
 1 kit of witches.”

SOUTHAMPTON

Dr. Lauder, M.O.H., writes concerning meat inspection in this town :
 “ The slaughterhouses are inspected regularly, both as to their sanitary condition and for the purpose of inspecting the meat slaughtered. A general sanitary inspection is made by the district inspectors, and two inspectors who are specially qualified for the inspection of meat, as well as the chief inspector, are constantly supervising work done at the slaughterhouses. We have a fish market and a cattle market in the town. In accordance with the requirements of the foreign meat and unsound food regulations, inspection is carried out in the port, entailing the employment of a special staff, under a medical assistant who devotes the whole of his time to the work.”

Summary of meat and fish destroyed as unfit for food :

BOROUGH

	1908.	1909 (to October 30).
Beef	3,947 lb.	12,195 lb.
Mutton	255 „	922 „
Veal	181 „	4 „
Pork	4,946 „	2,902 „
Fish	5,318 „	7,084 „

PORT

	1909 (to October 30).			
	Tons.	Cwt.	Qr.	Lb.
Beef	22	13	1	19
Mutton	2	9	1	12
Pork	—	4	—	7

READING

We are indebted to Dr. Ashby, M.O.H., for the following information in this district: "The abattoirs consist of fifteen separate slaughterhouses in buildings belonging to the Corporation. Fourteen of these are let to private butchers, but one is reserved as a public slaughterhouse in which any butcher may slaughter animals at fixed charges. There is a qualified meat inspector who acts in conjunction with the M.O.H. Most of the diseased or unsound food is surrendered voluntarily, but whenever necessary it is dealt with by a Justice in accordance with the provisions of the Public Health Acts. The following figures show the number of animals slaughtered and condemned in 1908.

"The animals slaughtered in the public slaughterhouse at the abattoirs numbered 1626, and included 122 beasts, 130 calves, 766 sheep, and 608 pigs.

"The amount received for slaughtering and lairage there was £40 5s. 5d."

Diseased or Unsound Food. "The quantities of diseased or unsound food destroyed during the year are given below :

	For tuberculosis.	For other reasons.
" 10 carcasses of beef	6 ..	4
6 parts of carcasses of beef	3 ..	3
7 carcasses of veal	1 ..	6
21 ,, mutton	— ..	21
47 ,, pork	42 ..	5
133 heads or internal organs of beasts	56 ..	77
253 ,, and internal organs of pigs	253 ..	—
106 parts of internal organs of sheep or pigs	— ..	106
8 rabbits	— ..	8
22 $\frac{3}{4}$ lb. of beef	— ..	22 $\frac{3}{4}$ lb.
556 ,, pork	— ..	556 ,,
280 ,, haddock	— ..	280 ,,
280 ,, herrings	— ..	280 ,,
301 ,, Scarborough soles or megrams.	— ..	301 ,,
112 ,, lemon sole	— ..	112 ,,
91 ,, whiting	— ..	91 ,,
84 ,, hake	— ..	84 ,,
7 foreign ox livers	— ..	7

DOVER

Dr. M. Robinson, M.O.H. for East Kent, which includes Dover, has been kind enough to send us a list of the articles of food which were destroyed from the sources indicated in the list during 1908. Dr. Robinson is of opinion that food inspection would be best carried out by a central authority under a system in which the inspectors have a constant change of sphere of work.

“The wholesale fish market was inspected daily, and hawkers’ barrows, fishmongers’, poulterers’, greengrocers’ and butchers’ shops kept under observation, and the following articles were destroyed at different times with the owners’ consent :

“ 2262 lb. whiting.	600 herrings.
544 „ plaice.	180 codling.
196 „ pouting.	1 cod.
56 „ mixed fish.	18 rabbits.
750 mackerel.	21 lb. corned beef.”

A Curious System. The conclusion to which one is forced after examining on the spot a large number of different centres of the meat industry and other centres of population of different types and kinds, is that in no two places is the system of meat inspection exactly alike nor of precisely the same standard. Of all the curious arrangements which are to-day in force and which have for their ostensible object the provision of adequate meat inspection, that which may be found in a well-known, fashionable watering-place is, perhaps, the most curious. In the place referred to there is a central slaughterhouse which is divided for purposes of killing into two portions, one an open hall in which any one who wishes to kill an animal or have one killed may do so on payment of a certain fee, the other part being let off in booths to various local butchers who pay a certain sum per annum for the use of the buildings. The slaughterhouse itself, however, does not belong to the corporation but to a private company, and is conducted as an ordinary commercial undertaking for the earning of a profit. There is no qualified meat inspector attached to the slaughterhouse, but there is a superintendent who is thoroughly well acquainted with the difference between good and bad meat, and whose duty it is to report to the Corporation veterinary surgeon anything in the shape of a diseased carcase which he may discover.

It then remains for the veterinary surgeon and the M.O.H. of the town, in consultation together, to decide what shall be done with the suspected carcase, a written certificate being given if it is required to be condemned. It will be observed that the superintendent of such a slaughterhouse is the *servant of the company which owns the place*, and it is quite obvious that such a system is open to grave abuse in the hands of an incompetent or unscrupulous person. In the particular place we have in mind, where the writer made careful inquiries as to how the system worked, there is no reason to suppose that the public do not receive adequate protection, indeed, it seems to work quite satisfactorily. But the arrangement has only to be described to show how abused it might be in the hands of other than skilled and honourable persons, especially if the veterinary surgeon to whom the appeal is made in case of necessity is not expected to pay periodical visits to the slaughterhouse, but is only called in by the person in charge when the latter thinks fit.

CHAPTER V

MEAT INSPECTION IN SCOTLAND

IT is to the great credit of Scottish corporations and municipal bodies that meat inspection in Scotland is as thoroughly carried out as it is, the standard of efficiency being far higher than that found in any other part of our country when considered as a whole. The necessity of public abattoirs is becoming recognised everywhere, and adopted in many places of comparatively small population.

We append particulars of the meat inspection of the most important centres of the industry, that of Edinburgh being supplied by Mr. Wood, M.R.C.V.S., lately one of the inspectors at the slaughterhouse. It should be mentioned that the present slaughterhouse in Edinburgh is being vacated in favour of a very fine up-to-date abattoir situated outside the city, at Gorgie.

EDINBURGH

“ The Corporation of Edinburgh have a regular staff of four qualified veterinary inspectors under the supervision of Dr. Maxwell Williamson, M.D., B.Sc., M.O.H. for the city, two of which inspectors are detailed for duty in the slaughterhouse for the purpose of inspecting all animals intended for slaughter, and all carcasses, before being allowed to pass out for the consumption of the public.

“ Edinburgh is to be congratulated on being the first city in this country to appoint veterinary surgeons for the important duty of meat inspection, the suggestion having been first made by the late Professor Walley, Principal of the Royal (Dick) Veterinary College, and adopted by the Corporation in 1889.

“ In the interests of public health, no unsound or diseased meat should be allowed to be sold for food, and the responsibility of deciding what is or is not fit for human consumption should rest upon the M.O.H., assisted by a competent veterinary surgeon specially trained in practical meat inspection.

“ Efficient inspection can be carried out only by the veterinary inspector who is appointed for that purpose, and who is retained by the Local Authority to devote his whole time to the duties of the office. It is quite possible for a practitioner, appointed under section 43 of the Public Health (Scotland) Act, 1897, to conscientiously carry out the duties under that Act ; at the same time there is the possibility, if not the probability, that, in dealing with a suspicious carcass belonging, it may be, to one of his clients, he will be tempted to consider his own interests indirectly

through those of his client by giving him the benefit of any doubt, or supposed doubt, he may have in his own mind regarding such a carcase, and granting a certificate of fitness for human food. To obviate that possibility the meat inspector should hold an independent position under the Local Authority and be strictly debarred from entering into private practice."

Where the Inspection is Carried on. "Most of the meat inspection in Edinburgh is done in the slaughterhouse in Fountainbridge, and here again Edinburgh shows an example to many other towns, more particularly south of the border, in having one slaughterhouse under municipal control, in which alone animals are allowed to be slaughtered.

"Under the Edinburgh Municipal and Police Act, 1850, powers were granted to the Corporation to prohibit the use of private slaughterhouses within the municipal boundary, and to prohibit also the erection and use of slaughterhouses within a distance of two miles of the boundary.

"The present slaughterhouse was built in 1851, and occupies a total area of close upon four acres.

"The main buildings consist of fifty-eight booths for slaughtering, with the necessary lairage accommodation for cattle behind each booth. The average area of each killing-booth is 400 square feet or thereby, which allows sufficient floor-space for the handling of two carcasses at a time. These booths are occupied by different butchers, and are let by the Corporation at an annual rent of £8. In some cases two or more smaller traders occupy a booth conjointly, each paying his proper proportion of rent. Over and above the rent of the booth, gate dues are charged for every animal which enters the slaughterhouse. Those using the slaughterhouse, but not renting a booth, are charged double rate for gate dues."

The Pig-killing House. "In another and separate part of the premises is the pig-killing house, which is common property and used by all pig-killers. This is a more modern building, having the arrangements and fittings tolerably well up to date. There is a plentiful supply of hot water for use in the piggery and in the tripery, a building used for cleaning and preparing tripe, feet, sheep-heads, &c., for the butcher. This department is worked chiefly by women, who are employed by the Corporation.

"All blood is collected in flat vessels and removed to the blood-house, which is under the management of a private firm. After separation of the clot, the serum is dried at a high temperature and is used chiefly as a mordant in the process of dyeing. The clot is sent away in barrels to be converted into manure.

"There are two hide, skin, and tallow stores within the slaughterhouse precincts, also rented from the Corporation by private firms to which all hides, skins, and tallow are at once removed."

The New Slaughterhouses and Markets. "Many objections have of recent years been made to the position and inefficient drainage of the present slaughterhouse, and the Corporation, under powers granted by the Edinburgh Corporation (Markets and Slaughterhouse) Order Confirmation Act, 1903, section 5, have recently completed the erection

of, corn and cattle markets and slaughterhouses outside the city boundary at Gorgie. The plan of the buildings has been most excellently arranged so that the work may be carried out smoothly. Thirty-five acres of ground have been utilised for the whole buildings, in the centre of which is situated the cattle market. To the north is the fat-stock market, on the south the slaughterhouse, and on the east side is the corn market. The slaughterhouse is arranged on the open hall system, the killing-hall measuring 300 ft. by 40 ft. where the animals are killed and dressed. Alongside this hall is the pennage hall, in which the pens are divided from each other by railings. In the large killing-hall there are thirty stances situated along the side next the pens, the other part of the hall being entirely open, thus giving every facility for inspection during the process of killing. The carcase is raised by a hand crane and run on an overhead rail to the cooling-house. This hall, of the same dimensions as the killing-hall, is divided into sections by wire divisions, thus allowing a free current of air through the whole building. Under the new arrangements ample accommodation has been provided, while the hanging of the carcasses in the cooling-hall affords the butcher every security for the safe keeping of his goods, at the same time leaving the whole space open to the eye of the inspector. As this is being written, additions are being made to the original plans for accommodation.

“The present regulations applying to cattle admitted to the slaughterhouse, and to the general management of the establishment, have been in force, with a few minor alterations, since the commencement of the slaughterhouse in 1851.

“The orders and bylaws are made and confirmed in terms of the Edinburgh Slaughterhouses Act, 1850, and the Edinburgh Corporation (Markets and Slaughterhouses) Order Confirmation Act, 1903. Under these bylaws cattle, once admitted, are not allowed to leave the slaughterhouse alive, but must be killed and dressed. The superintendent is made responsible for the due observance of the whole regulations, and when he perceives anything amiss which he cannot rectify of his own authority he is required to report the same to the City Chamberlain or the Markets Committee.

Duties of a Superintendent. “The superintendent resides upon the premises, and he is particularly required to attend to the enforcement of cleanliness and of good order within the slaughterhouse. He has to devote his whole time and attention to the duties of his office, and is not at liberty to engage in any other occupation whatever. As slaughtering can be carried on between the hours of 4 A.M. and 10 P.M. and during the months of July, August, and September, when there is no restriction of hours, it is his duty to detain any suspicious carcase and internal organs for inspection by a member of the veterinary staff, one of whom is on duty at the slaughterhouse at 6 A.M.

“The superintendent is also required to keep account of all animals entering and carcasses leaving the slaughterhouse, for commercial and statistical purposes, and to collect all dues, &c., falling to be paid by those

using the slaughterhouse. To assist in this work an assistant superintendent, who takes charge of the tripery, and two gatekeepers are appointed by the Markets Committee. The gatekeepers are subject to the orders of the superintendent, and must attend in his lodge when required by him.

“Dues are levied on all cattle brought to the slaughterhouse to be slaughtered, in terms of ‘The Edinburgh Slaughterhouse Act, 1850,’ and ‘The Edinburgh Markets and Customs Act, 1874.’ These dues may be increased or diminished in the manner authorised by the Act, and have varied within the limits set forth in the Tables of Rates given below. Fleshers not renting booths pay double the rate charged to those renting booths.

	Payable by fleshers renting booths.			Payable by fleshers not renting booths.		
	Rate in 1850.	Present rate.		Rate in 1850.	Present rate.	
Cattle	6 <i>d.</i>	4½ <i>d.</i>	..	1 <i>s.</i>	9 <i>d.</i>	..
Pigs	3 <i>d.</i>	2¼ <i>d.</i>	..	6 <i>d.</i>	4½ <i>d.</i>	..
Calves	3 <i>d.</i>	2¼ <i>d.</i>	..	6 <i>d.</i>	4½ <i>d.</i>	..
Sheep	1 <i>d.</i>	¾ <i>d.</i>	..	2 <i>d.</i>	1½ <i>d.</i>	..
Deer	3 <i>d.</i>	2¼ <i>d.</i>	..	6 <i>d.</i>	4½ <i>d.</i>	..

“Hides, skins, and tallow of cattle not slaughtered within the slaughterhouses may be brought to the hide, skin, and tallow market on payment of the following dues to be collected at the gates :

Hides, each	1 <i>d.</i>
Tallow, per cwt. . . .	½ <i>d.</i>
Skins, per score	2 <i>d.</i> ”

Appointment and Duties of Inspectors. Section 31 of the Edinburgh Municipal and Police (Amendment) Act, 1891, refers to the appointment of food inspectors, and is in the following terms : “The Magistrates and Council may at any time and from time to time appoint and pay and may remove at pleasure all such inspectors as they may deem necessary for and in connection with the inspection of any article intended for human consumption, and to execute such of the powers and duties in relation thereto conferred by this Act as the Magistrates and Council may prescribe or require and also for the purpose of more effectually carrying out under the Authority of the Magistrates and Council any of the powers under any public general Act in force relating to the public health.”

The inspection of meat is specially provided for by section 43 of the Public Health (Scotland) Act, 1897, under which the veterinary inspector holds his appointment. Sub-section 1 is as follows :

“Any medical officer or sanitary inspector or any Veterinary Surgeon approved for the purposes of this Section by the local authority may at all reasonable times enter any premises within the district of the local authority or search any cart or vehicle or any barrow, basket, sack, bag, or parcel in order to inspect and examine and may inspect and examine :

“(a) Any animal alive or dead intended for the food of man which is exposed for sale or deposited in any place or is in course of transmission for the purpose of sale or of preparation for sale ; and

“(b) Any article, whether solid or liquid, intended for the food of man and sold or exposed for sale or deposited in any place or in course of transmission for the purpose of sale or of preparation for sale, the proof that the same was not exposed or deposited or in course of transmission for any such purpose or was not intended for the food of man resting with the person charged ; and if any such article or animal appears to such Medical Officer or Sanitary Inspector or Veterinary Inspector to be diseased or unsound or unfit for the food of man, he may seize and carry away the same himself or by an assistant in order to have the same dealt with.

“The medical officer or sanitary inspector, unless he is himself a qualified veterinary surgeon, must be accompanied by a veterinary surgeon approved as aforesaid in the case of any proceedings with regard to a living animal.”

The Infliction of Penalties. “ Sub-section 2 imposes a penalty of fifty pounds upon the person for every parcel of fruit, vegetables, corn, &c., so condemned, unless he proves that he did not know and could not with reasonable care have known that it was in such a condition.

“ Provided, also, that if such person proves that the animal or part thereof was within a reasonable time prior to seizure examined on the premises where the animal was slaughtered, and passed by a veterinary surgeon approved as aforesaid called in for that purpose, and who shall have granted a certificate of passing in terms of sub-section 3, he shall be exempt from penalty or imprisonment under this section for such offence. Sub-section 8 provides that if any person obstructs a medical officer or sanitary inspector or veterinary surgeon as aforesaid in the performance of his duty under this section, he shall, where the proceedings are before a sheriff and where the sheriff is satisfied that the obstruction was with intent to prevent the discovery of an offence under this section, or that the accused has within twelve months previously been convicted of such obstruction, be liable to imprisonment for any term not exceeding one month in lieu of any penalty authorised by this Act for such obstruction.

“ Two of the veterinary staff are deputed for duty in the slaughterhouse and dead-meat markets, one or other of them being in constant attendance from 6 A.M. to 6 P.M., and on Tuesdays, when the live-stock sales are held in the city and a large number of cattle are killed during the evening, the inspector remains on duty till 10 P.M.”

Inspecting in Booths. “ Inspection of all animals and carcasses in a slaughterhouse built on the separate booth system cannot be so adequately carried out as in a building on the open hall system ; but when a certain amount of method is adopted in going the round of the various booths, every carcase can be seen by the inspector in at least three stages of dressing or preparation. In the course of his first round after going on duty he examines carefully all live animals in the lairs behind each booth,

there waiting to be slaughtered, and takes note of any which may appear in poor condition or otherwise unhealthy, and also a note of the presence of any cows, which usually require more particular attention. Thereafter, by keeping constantly on the move from booth to booth, every carcass can be examined, as well as the internal organs in detail before they are removed. On entering each booth the inspector takes a rapid but careful scrutiny of every thing and every person in the booth. He makes a general inspection of the carcass, noting particularly the condition of the peritoneum and pleuræ; the lymphatic glands are then examined carefully, but are not incised, as a rule, if there is no enlargement of the glands and the carcass is otherwise healthy and in good condition. The head and tongue with its lymphatic glands are examined closely for the presence or otherwise of actinomycosis or any other abnormality. Then the lungs and the bronchial and mediastinal glands are in all cases manipulated, and if found to be enlarged are incised. The condition of the liver is noted, and if diseased is wholly or in part destroyed. The spleen and mesenteric glands are then carefully examined."

When the Carcass is Diseased. "If a carcass is found to be diseased and absolutely unfit for human food, it is at once removed to a separate booth reserved for that purpose, erroneously called 'The Sanatorium,' but if in the opinion of the inspector a portion of the carcass may be passed, or if the condition of the carcass is such that any doubt exists as to its fitness for food, it is detained for further inspection and is allowed to remain in the booth in which it was killed, marked 'Detained for Inspection,' or it is removed to the detention booth, where it is examined by the other veterinary inspectors or, in cases where a further and final opinion is desired, by the M.O.H.

"In the case of pigs, each carcass is carefully examined and the lymphatic glands of the neck are incised, but it is most exceptional to find any disease. It is a remarkable fact that the percentage of pigs found in Edinburgh affected with tuberculosis is practically negligible, while the number condemned for other conditions is also small."

Examination of Sheep. "A systematic examination of the sheep is not considered so necessary, owing to the relative absence of disease and especially tuberculosis, yet each carcass is carefully examined and any suspicious case is removed to the detention booth.

"The recommendations of the Royal Commission on Tuberculosis are followed as closely as possible in carcasses affected with tuberculosis, both as regards cattle and pigs. In the case of the latter animal the recommendation is 'that in view of the greater tendency to generalisation of tuberculosis in the pig, we consider that the presence of tubercular deposit in any degree should involve seizure of the whole carcass and of the organs.' The very few cases which have been met with during the last few years have been wholly condemned, and the amount of infiltration of the disease in each case has justified such condemnation."

Procedure for Destruction of Condemned Carcass. "When a carcass is seized in the slaughterhouse, an opportunity is given the owner of signing

an agreement to the condemnation and destruction of the same, and as soon as his signature has been procured, the superintendent is at liberty to remove the carcase to the boiler for destruction. If, however, the owner refuses to agree to the seizure, the inspector at once writes a certificate to the effect that the said carcase is diseased or unsound and unfit for human food, and presents it along with an application for a destruction order to the magistrate presiding at the police court. Notice in writing is at the same time served upon the owner, that such order is to be applied for, so that he may have an opportunity of appearing before the magistrate to state his reasons why a destruction order should not be granted.

“All condemned carcases are destroyed by boiling in large tanks, supplied with steam, and used only for that purpose. The fat is skimmed off the top at intervals and poured into barrels to be made into tallow, and the bones are dried and sold for the manufacturer of manure. The soft or fleshy residue is mixed with the ordinary manure, and conveyed in barges on the canal to the farmers for use on the land.”

Objection to the System. “Objection has been taken to this method of destruction of condemned meat on account of the smell caused by the boiling, but in practice it has been found that this objection can be overcome very largely, if not entirely, by the observance of a simple precaution in the management of the boilers. It is stated that when the process is first started if the steam be allowed to enter the boiler with moderate force, sufficient only to cause the contents to simmer and not to boil, for a period of three or four hours, say, during the evening, then turned off and the whole allowed to cool during the night, the process can be commenced again next day and the tank raised to and kept at boiling-point until the flesh is entirely separated from the bones. The fat which rises to the top of the tank must be skimmed off at repeated intervals and not allowed to collect in any large quantity on top of the boiling mass.

“By observing this precaution those in charge of this work say that the smell which would otherwise arise from the process of maceration, is reduced to a minimum. Whatever the explanation may be, it is a fact that in the Edinburgh slaughterhouse no objectionable smell is ever experienced in the neighbourhood of the building in which the maceration of the carcases is carried out.”

DISEASES WHICH CAUSE CONDEMNATION IN MEAT

“It has been the practice for a number of years in the Edinburgh slaughterhouse to keep a careful record of the various carcases condemned as being unfit for human food, both as regards their numbers and the diseases which have been the cause of condemnation. Statistical Tables are here given, which show that tuberculosis has always been the predominant cause which has led to condemnation of the carcases of cattle.

“Septicæmia in cows is a frequent cause, and comes next in order to tuberculosis. These cases are frequently the result of retention of the

placenta due to a part of that organ remaining in the uterus, the other part having been cut off by the dealer before the cow is exposed in the action sale. She is then said to have 'Calved at my own place on Sunday (three days before the sale) cleaned and all correct.' Another cause of septicæmia is the presence of a foreign body, such as a nail or piece of wire, in the walls of the stomach, usually found in the reticulum, somewhere in its passage from the reticulum to the heart, or in the heart itself.

"In sheep the condition which most often leads to condemnation is decomposition, followed closely by emaciation, then enteritis, œdema, &c."

How Calves are Treated. "Enteritis is the cause of practically all the seizure of calves. A large number of newly born calves are sent into the sales in the city, and thence find their way to the slaughterhouse. These poor unfortunate beasts are often starved after a long train journey, and perished with cold and wet, a pitiable sight to be witnessed in this twentieth century. Calves ought not to be allowed into such yards, or killed for food until they are at least one month old; but at present the meat inspector has no authority to interfere. It is a question which may well be looked into by the Society for the Prevention of Cruelty to Animals.

"As regards tuberculosis, in the Table showing the extent of infection in carcasses condemned for this disease, it will be seen that the recommendations of the Royal Commission have in all cases been closely followed. Only two carcasses were condemned when affected in one organ only, namely, the lungs, but in both cases the carcass was emaciated and of very poor quality.

"A comparison of the Tables for the years 1898 to 1900 with those for the period from 1905 to 1907 shows that the quantity of meat condemned for tuberculosis is considerably less during the latter period. This is due to the smaller number of cows now slaughtered in this city. It is a well-known fact that tuberculosis is much more prevalent in cows than in other animals, and the owners, no doubt, prefer to send them to slaughterhouses in other districts where the supervision and inspection are less stringent. The number of cows slaughtered during the year was only 302, as the majority of this class of animals purchased at the fat-stock sales are sent chiefly to England and Glasgow."

Seizure of Carcasses. "Of this number thirty-two were condemned in whole, while in four the disease was localised and so slight as to necessitate portions only of the carcasses being seized.

"The butchers invariably agree to the destruction of any carcass seized, without any dispute in regard to the matter; and since the mutual insurance scheme has been in vogue there is seldom any attempt on the part of the butchers themselves to conceal the presence of tubercular disease in cattle slaughtered by them.

"The other diseases shown in the Tables are few in number and do not call for any particular notice here."

We are much indebted to Mr. Wood for the above account and for his comments.

SHOWING NUMBER OF ANIMALS SLAUGHTERED, ALSO CARCASSES SEIZED AND CONDEMNED IN THE EDINBURGH
SLAUGHTERHOUSE DURING THE YEARS 1898, 1899, AND 1900, AND THE WEIGHT OF
CONDEMNED CARCASSES

Year.	Animals slaughtered.					Carcasses seized and condemned.					Weight of condemned carcasses in lb. avoirdupois.				
	Cattle.	Calves.	Pigs.	Sheep.	Total.	Cattle.	Calves.	Pigs.	Sheep.	Total.	Beef.	Veal.	Pork.	Mutton.	Total.
1898	31,825	5384	6298	187,351	230,858	282	41	24	169	516	128,264	1448	2978.	6692	139,382
	Add carcasses seized					3	—	1	3	7	4,103	32	115	155	4,405
1899	Totals					285	41	25	172	523	132,367	1480	3093	6847	143,787
	30,159	5099	8175	188,618	232,051	248	38	78	166	530	114,148	1685	5383	5532	126,748
1900	Add parts of carcasses condemned for injuries, &c.					Totals					1,219	152	—	101	1,472
											115,367	1837	5383	5633	128,220
	28,153	4596	8463	168,248	209,460	177	77	30	185	469	81,750	2863	2405	6920	93,938
	Add parts of carcasses condemned for injuries, &c.					Totals					688	—	—	288	976
											82,438	2863	2405	7208	94,914

SHOWING NUMBER OF ANIMALS SLAUGHTERED, ALSO CARCASSES SEIZED AND CONDEMNED, IN THE EDINBURGH
SLAUGHTERHOUSE, DURING THE YEARS 1905, 1906, AND 1907; AND THE WEIGHT OF
CONDEMNED CARCASSES

Year.	Animals slaughtered.					Carcasses seized and condemned.					Weight of condemned carcasses in lb. avoirdupois.				
	Cattle.	Calves.	Pigs.	Sheep.	Total.	Cattle.	Calves.	Pigs.	Sheep.	Total.	Beef.	Veal.	Pork.	Mutton.	Total.
1905	29,077	4248	7154	167,117	207,596	173	41	98	138	450	100,834	1847	6408	4643	113,732
	Add parts condemned for injuries, &c.										1,174	—	—	80	1,254
	,, quarters condemned for tuberculosis										8,510	—	—	—	8,510
1906	Totals										110,518	1847	6408	4723	123,496
	28,048	4563	6175	169,158	207,944	161	47	7	128	343	86,989	1707	648	5403	94,747
	Add parts condemned for injuries, &c.										712	—	142	225	1,079
1907	,, 54 quarters condemned for tuberculosis										7,772	—	—	—	7,772
	Totals										95,473	1707	790	5628	103,598
	29,216	4503	7654	185,344	226,717	159	19	48	138	364	87,150	754	2930	5236	96,070
	Add parts condemned for injuries, &c.										652	—	—	48	700
	,, 56 quarters condemned for tuberculosis										6,829	—	—	—	6,829
	Totals										94,631	754	2930	5284	103,599

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SHOWING THE DISEASES FOUND IN THE CARCASSES SEIZED IN THE
EDINBURGH SLAUGHTERHOUSE DURING THE YEAR 1898

Disease.	Cows.	Bullocks.	Bulls.	Heifers.	Calves.	Pigs.	Sheep.	Total.
Inflammatory conditions of chest .	11					1	1	13
Do do of abdomen	42	3			32	6	3	86
Do do of udder	2							2
*Tuberculosis . . .	124	5	2	1	2	4		138
Swine fever . . .						1		1
Septicæmia . . .	11							11
Dropsy	8				5	4	42	59
Suffocation . . .	2	4	1				51	58
Anthrax	3	1						4
Poisoned		2						2
Otherwise unmarketable .	31	2	1		2	7	74	117
Disease undetermined .	28	1				2	1	32
Total	262	18	4	1	41	25	172	523

* Tuberculous lesions were detected in the udder in twenty-three cases.

SHOWING THE DISEASES FOUND IN THE CARCASSES SEIZED IN THE
EDINBURGH SLAUGHTERHOUSE DURING THE YEAR 1899

Disease.	Cows,	Bullocks.	Bulls.	Heifers.	Calves.	Pigs.	Sheep.	Total.
Inflammatory conditions of chest .	6					1		7
Do do of abdomen	47				34	11	1	93
Tuberculosis . . .	114	6	1	3		4		128
Fevered	36							36
Dropsy	7	4				12	93	116
Suffocation . . .		1	1		1	4	35	42
Septicæmia . . .	10							10
Hydatid disease . .	1							1
Anthrax		2						2
Otherwise unmarketable .	13	1		1	5	46	41	107
Total	234	14	2	4	40	78	170	542

BOVINE DISTOMATOSIS

A portion of a typical "flake" liver, showing the thickened bile-ducts on cross-section,
and a portion of very cirrhotic liver tissue.



SHOWING THE DISEASES FOUND IN THE CARCASSES SEIZED IN THE
EDINBURGH SLAUGHTERHOUSE DURING THE YEAR 1900

Disease.	Cows.	Bullocks.	Bulls.	Heifers.	Calves.	Pigs.	Sheep.	Total.
Inflammatory conditions of chest	5		1	1			1	7
Do do of abdomen	27	4	1	4	63	1	5	102
Tuberculosis. . .	88	2			1	4		99
Fevered . . .	21	1					1	23
Suffocation . . .		3					50	53
Dropsy . . .	1				2	3	95	101
Swine fever . . .						4		4
Rheumatism . . .		2				3		5
Pyæmia . . .							1	1
Septicæmia . . .	4							4
Milk fever . . .	2							2
Hydatid disease . .	1							1
Otherwise unmarketable	14	3			10	16	41	84
Total. . .	163	15	1	5	77	31	194	486

SHOWING THE DISEASES FOUND IN THE CARCASSES SEIZED IN THE
EDINBURGH SLAUGHTERHOUSE DURING THE YEAR 1905

Disease.	Cows.	Bulls.	Bullocks.	Heifers.	Calves.	Pigs.	Sheep.	Total.
Tuberculosis . . .	44	8	49	12	1	3		117
Decomposition . . .	7		1		4	5	42	59
Emaciation . . .	7		1		2	75	47	132
Enteritis . . .	3		2		32	5	17	59
Œdema . . .	3				1	3	13	20
Pyrexia . . .	13		1			2	1	17
Traumatism . . .	1						8	9
Pneumonia . . .	4		1		1		3	9
Septicæmia . . .	2		1		1			4
Carditis . . .	1							1
Urticaria . . .							1	1
Asphyxia . . .			2				12	14
Cystitis . . .							1	1
Pleurisy . . .					1		1	2
Pericarditis . . .	1							1
Hæmorrhage . . .			1					1
Nephritis . . .	1							1
Actinomycosis . . .			1					1
Peritonitis . . .	2							2
Icterus . . .						1		1
Metritis . . .	1							1
Total . . .	90	8	60	12	43	94	146	453

SHOWING THE DISEASES FOUND IN THE CARCASSES SEIZED IN THE EDINBURGH SLAUGHTERHOUSE
DURING THE YEARS 1906-1907

Disease.	Cows.	Bulls.	Bullocks.	Heifers.	Calves.	Pigs.	Sheep.	Total.	Disease.	Cows.	Bulls.	Bullocks.	Heifers.	Calves.	Pigs.	Sheep.	Total.
Tuberculosis .	31	7	46	5		1		90	Tuberculosis .	34	6	78	12		8		138
Decomposition .	7		3		9	1	47	67	Decomposition .	1						63	64
Œdema .	1		1		1		13	16	Traumatism .	1		1		5		3	10
Enteritis .	7		2		45	1	25	80	Septicæmia .	13						7	20
Emaciation .	2		3				36	41	Enteritis .	9		2		14	7	7	39
Pyrexia .	9		1				3	13	Emaciation .	5	1				14	44	64
Metritis .	2							2	Asphyxia .	2	2					4	8
Septicæmia .	16							16	Pyrexia .	2	2	1				1	4
Pneumonia .	7							7	Peritonitis .	3							3
Asphyxia .	2		1			3	3	9	Ascites .							1	2
Traumatism .	1						6	7	Dystokia .	2		1					3
Anthrax .	1							2	Pyæmia .						1	1	1
Pericarditis .	2		1					2	Œdema .						1	1	2
Pyæmia .	1						1	2	Louping ill .							1	1
Dystokia .	1							1	Swine fever .						23		23
Pleurisy .								1	Mastitis .							1	1
Peritonitis .							1	1	Metritis .	2			1				2
Urticaria .	1		1			1		3	Pericarditis .	2							3
Anasarca .								1	Icterus .						1		1
Totals .	92	7	59	5	55	7	136	361	Totals .	76	9	83	13	19	55	134	389

SHOWING THE EXTENT OF INFECTION IN CONDEMNED TUBERCULOUS CARCASSES DURING THE YEAR 1907, EDINBURGH

	Number of animals.			Lungs.			Heart and pericardium.			Pleuræ.			Liver.			Spleen.			Bowels.			Perito- neum.			Udder.			Other organs.			Lym- phatic glands.			Emaciated.
	Slightly.	Considerably.	Severely.	Slightly.	Considerably.	Severely.	Slightly.	Considerably.	Severely.	Slightly.	Considerably.	Severely.	Slightly.	Considerably.	Severely.	Slightly.	Considerably.	Severely.	Slightly.	Considerably.	Severely.	Slightly.	Considerably.	Severely.	Larynx.	Bones.	Bladder and Uterus.	Slightly.	Considerably.	Severely.				
Animals with 1 organ affected	2	2																													2			
" 2 organs affected	30	11	9	7			1			7	9	7	2																			1	3	
" 3 "	15	4	6	5					1	4	7	3	6																			1	2	
" 4 "	19	5	9	4						8	1	1	6	5	2																	1	2	
" 5 "	40	9	22	9						10	22	8	16	17	6																	1	1	
" 6 "	24	8	14	2						8	11	6	8	9	7																	2	2	
" 7 or more organs affected .	5	1	2	2						1	2	2	2	1	2																	3	3	
	135	38	64	29			1	3	3	38	59	27	40	32	18																			14
	131			124			7			90			32			91			83			2			14			92			14			

SUMMARY OF PROCEEDINGS IN EDINBURGH, 1901-1907

Seizures of meat, &c., exposed for sale.								Seizures of meat, &c., in possession, but not exposed for sale	
		No.	Total weight in lb. av.	No proceedings.	Convicted.	Acquitted.	Fines imposed.	No.	Total weight in lb. av.
1901	On lorries, carts, vans, &c.	15	8496	40	10	2	<div> <div>£</div> <div>94</div> <div>s. 0</div> <div>d. 0</div> </div>	14	5371
	In shops and wholesale premises	14							
	In dead-meat sales	12							
	At railway-stations	11							
1902	On lorries, carts, vans, &c.	7	10589	39	8	5	<div> <div>34</div> <div>0</div> <div>0</div> </div>	10	1080
	In shops and wholesale premises	23							
	In dead-meat sales	15							
	At railway-stations	8							
1903	On lorries, carts, vans, &c.	4	4685	33	17	2	<div> <div>67</div> <div>0</div> <div>0</div> </div>	16	3278
	In shops and wholesale premises	34							
	In dead-meat sales	11							
	At railway-stations	10							
	For concealing disease in an ox carcase						<div> <div>30</div> <div>0</div> <div>0</div> </div>		
1904	On lorries, carts, vans, &c.	8	6172	34	8	2	<div> <div>67</div> <div>15</div> <div>0</div> </div>	24	4891
	In shops and wholesale premises	17							
	In dead-meat sales	14							
	At railway-stations	5							
1905	On lorries, carts, vans, &c.	3	5369	48	6	3	<div> <div>52</div> <div>7</div> <div>6</div> </div>	31	5510
	In shops and wholesale premises	40							
	In dead-meat sales	9							
	At railway-stations	5							
1906	On lorries, carts, vans, &c.	3	1446	18	6	1	<div> <div>28</div> <div>0</div> <div>0</div> </div>	23	3861
	In shops and wholesale premises	12							
	In dead-meat sales	4							
	At railway-stations	6							
1907	On lorries, carts, vans, &c.	3	2475	19	4	0	<div> <div>152</div> <div>0</div> <div>0</div> </div>	8	754
	In shops and wholesale premises	10							
	In dead-meat sales	6							
	At railway-stations	3							

For the information in the following paragraphs in reference to meat inspection in Scottish cities, other than Edinburgh, we are indebted to Dr. Frederick Dittmar's report on the conditions prevailing in Scotland and as to the methods of meat inspection in that country published in 1908.

GLASGOW

There are four slaughterhouses in the city of Glasgow belonging to the Corporation, three of which are used for the slaughter of home animals alone, while the fourth is restricted to the slaughter of foreign animals. It is proposed to close the two smaller of the former and to enlarge the central abattoir. In the slaughterhouses there is a superintendent with a staff, who, however, have nothing to do with the meat inspection itself, which is under the control of the veterinary surgeon in whose charge is placed the whole of the work of meat inspection in the city. This staff for meat inspection consists of the chief veterinary surgeon, two qualified veterinary assistants and fourteen lay inspectors, all of whom devote their whole time to the work. Lay inspectors take turns to be on duty at the different places where inspection is required, such as the slaughterhouses, meat shops, wharves, railway stations, meat markets and so forth. The lay inspectors are chiefly practical butchers appointed after examination. Those on duty at the slaughterhouses are present all day, going from booth to booth and carrying out systematic examination of the carcasses of internal organs before they are removed to the markets. This examination is carried out somewhat on the lines of the usual Continental system. It is much more complete and thorough than in most places in Great Britain, especially in the case of bovine animals. The action taken by Mr. Trotter, the chief veterinary inspector, as the result of the examination is thus described :

Action in Connection with Carcasses affected with Tuberculosis.

“(1) *In regard to bovine carcasses affected with tuberculosis*, the recommendations of the Royal Commission on Tuberculosis of 1898 are taken as a guide. But the final judgment in any case depends upon the pathological condition and on the general condition of the carcass.

“(2) *In regard to the carcasses of pigs affected with tuberculosis*, the Royal Commission of 1898 recommended that, ‘in view of the greater tendency to generalisation of tuberculosis in the pig, we consider that the presence of tubercular deposit in any degree should involve seizure of the whole carcass and of the organs.’

“This recommendation is not followed in Glasgow, the veterinary surgeon being satisfied from his own experience that tuberculosis may be, and often is, as strictly localised in the pig as in bovines. Every carcass is carefully examined and dealt with according to the pathological condition found. Thus, if the carcass be in good condition and the tubercular deposit be strictly confined to the throat lymphatic glands, the head only is condemned. If the disease be strictly confined to an internal organ (*e.g.* one lung) and the carcass is otherwise sound, only the part affected is rejected.

“Widespread affection of the lymphatic glandular system involves condemnation of the whole carcass and of the internal organs in all cases.

“Localised affection of the lymphatic glandular system or of internal

organs would involve condemnation of the whole carcase and internal organs only if the carcase were in poor condition.

"The carcasses of pigs to be subjected to further examination are labelled 'detained for inspection' in the same way as bovine cases, but for convenience they are examined in a part of the pig-killing house and not removed to the 'detention-room.'

"(3) The carcasses of sheep affected with tuberculosis are dealt with on the same principles as bovine carcasses.

"In regard to diseased conditions other than tuberculosis, the action taken is in accordance with the general principles of pathological science.

"Conditions in meat of unsoundness and unfitness for human food, apart from actual disease, are dealt with on their merits, each case being judged by itself.

"In the case of so-called 'fallen animals' Mr. Trotter informs me that the carcase is usually hung for twenty-four hours in order to observe how it 'sets' before judgment is finally passed on its suitability or otherwise for human food. In such carcasses also portions of tissue are submitted to microscopic examination.

"If the results of examination are satisfactory, the carcase is allowed to pass into market. If unsatisfactory, it is retained for destruction.

"Carcasses and organs affected with anthrax are removed in a special closed cart, constructed of galvanised iron, to one of the city refuse-destructors, where they are cremated" (Dr. Dittmar's Report).

Action as a Result of the Preliminary Inspection. "*(a) Action in the case of Sound Carcasses, and where only an Internal Organ is Diseased.* If the meat inspector, after detailed examination as described above, is satisfied that a carcase and the internal organs thereof are sound and healthy, the owner is at liberty to remove it, and place it on the market for human food.

"*Speaking generally, if a diseased condition be found in any internal organ and is strictly confined thereto, the affected organ only is rejected, while the carcase, if in good condition and free from any evidence of disease, is passed for market without being subjected to further examination.*

"*(b) Action in case of Diseased and Unsound Conditions of Meat.* If in any case the meat inspector discovers any condition of disease or of unsoundness in a carcase that he deems it advisable to submit to further examination, the carcase is conspicuously labelled 'detained for inspection,' and, together with all the internal organs belonging thereto, is taken to the 'detention-room,' which is specially reserved for this purpose. There it is submitted to a detailed examination by the veterinary staff. Carcasses affected with anthrax or in a state of decomposition are not taken into the 'detention-room,' but are removed direct from the killing-booth for destruction.

"The district abattoirs are visited daily by the veterinary staff, when anything that has been detained for further examination by the inspector on duty is brought under notice.

"Even the slightest affection of a carcase with tuberculosis would

entail the removal of the whole of it, together with the internal organs, to the 'detention-room.' A widespread affection of the internal organs or of the lymphatic glandular system with tuberculosis without obvious affection of the carcass would also entail removal thereof, together with all the internal organs, for further examination.

"In regard to the further examination of material that is sent to the 'detention-room,' it can be accurately described as a detailed examination of the carcass, internal organs and lymphatic glandular system, and the removal, where necessary, of portions of tissue for microscopical examination" (Dr. Dittmar's Report).

Examination of Fresh Pig Carcasses brought to Glasgow. "By voluntary arrangement with the pork merchants, at least 95 per cent. of the *fresh* pig carcasses consigned to them from places without Glasgow are examined by the meat inspectors before being placed on the market. The carcasses have no internal organs attached except the kidneys, and the examination consists of a careful inspection of the carcass, together with a detailed examination of all the lymphatic glands that can be reached. In this connection, Mr. Trotter states that he has found carcasses in which there is evidence that the lymphatic glands have been removed, doubtless to obliterate evidence of disease. Carcasses of this kind he condemns if any trace at all can be found of disease. Steps are also taken with a view to prosecution.

"But, in addition to *fresh* carcasses, many tons of cured bacon arrive in the city in the course of the year from districts in Scotland outside of Glasgow; and there is reason to believe that no examination of the carcasses concerned has, at any time, taken place by the responsible officials of a Local Authority. It also arrives in such a condition that examination for the detection of disease is no longer possible—at least not by the ordinary naked-eye method.

"In his Report for 1904-5 Mr. Trotter states that about 80 to 100 tons of *boned-out pork* ready for curing arrive weekly in the city from Ireland. This, there is reason to believe, has not undergone any previous inspection by responsible officials, and in the condition in which it arrives in Glasgow it is almost useless to examine it for evidence of disease. Not only is it boneless, but the serous membranes have been removed. It is a shapeless mass of flesh in which a lymphatic gland, for example, could only be found with difficulty. Apart from conditions of unsoundness due to decomposition, it would be well nigh hopeless to search for evidence of, say, tubercular disease in material of this nature by the ordinary naked-eye method.

Examination of Fresh Sheep Carcasses consigned to Glasgow. "With regard to fresh sheep carcasses, which come to the city from many parts of Scotland, these are examined at the railway stations when few in number, and at the dead-meat market when in large consignments.

"Summing up, it may be stated that meat inspection is carried out in a thoroughly efficient manner in Glasgow, but not *all* meat that is intended for human consumption passes through the meat inspectors' hands.

"The inspection of all animals slaughtered in the city, both home and foreign, is a searching one. Except in a small proportion of cases, the examination of meat intended for human food is a naked-eye one" (Dr. Dittmar's Report, 1907).

Where Dead Meat comes from. The above proceedings refer, of course, to the meat which passes through the Corporation slaughterhouses. In addition to this, however, a very large quantity of dead meat arrives from other parts of Scotland and Ireland, and immense quantities of frozen and chilled meats of all kinds come from the Colonies and foreign countries. Beef, mutton and pork come from other parts of Scotland; from Ireland the consignments are chiefly sides of carcasses of pork and boned-out pork, chilled and frozen beef. Mutton arrives from Canada, New Zealand, United States and the Argentine, while Holland sends large numbers of pig-carcasses. All the meat which comes in from foreign parts to this country shows evidence of having been inspected and passed as fit for human food, and the same remark applies to Colonial mutton from New Zealand and Australia. In frozen carcasses the sacking or covering is stamped as being inspected, while in the case of the chilled meat the meat itself is marked. On the other hand, home-killed meat brought into the city by various methods of transport shows no signs of having been inspected at all, except that coming from Stranraer and Hamilton, which is stamped. In order, therefore, to supervise the meat arriving from other parts of this country, the inspectors pay regular visits to the dead-meat markets, which are situated close to the slaughterhouses. Every meat-purveyor is also visited systematically, inspection taking place in each shop on an average about once a fortnight. The inspectors also stop carts which are conveying meat in the streets and examine their contents. Special arrangements are made for the inspection of the carcasses of calves, large numbers of which come into the city during the calving season. This inspection is chiefly at the railway stations. As each carcase is removed from the railway-truck the inspector prolongs the incision in the abdominal wall through the sternum, and thus exposes the organs in the thorax. The liver and kidneys also being present, are examined, and anything suspicious in these calves is detained for further examination. If any of the inspectors find a carcase in any part of the city obviously unfit for food, he reports it at once to the chief veterinary surgeon, who takes whatever subsequent proceeding is necessary.

Microscopic and other examinations are carried out in a laboratory provided for the purpose at one of the abattoirs, and here samples of American pork are examined for trichinosis.

Handling the Condemned Carcasses. Meat which has been seized or condemned is taken to a special room, where it is sprinkled with chloride of lime before being boiled down. The diseased meat is handed over, with the consent of the owner, for destruction, and in case he refuses consent steps are taken to seize meat under warrant.

In order to obviate the danger arising from the surface contamination

of carcasses due to the use of knives, cloths, and other articles smeared with tubercular matter, carcasses detained for inspection are taken unwiped to the detention-room, and thoroughly wiped with special cloths. These are then disinfected, as also are the knives of the inspectors.

DUNDEE

In this city the public abattoir which is controlled by the local authority is constructed on the separate booth principle, there being thirty booths with cattle-lairage behind each. Seventeen of these booths are rented to certain butchers for their own use, while the remainder are available for any who wish to use them. In all the booths the slaughtering is under official control, and all carcasses must be inspected before being removed. There is separate accommodation for the slaughter of pigs except in the case of boars and large sows, which are killed in the ordinary booths. Three separate booths are fitted up for the slaughter of sheep, which are also killed in the ordinary booths. Within the slaughterhouse there is a Corporation dead-meat market, which is divided into sections which are rented by meat-purveyors, a somewhat similar arrangement to that seen in Birmingham. This meat market is connected by the overhead system with the slaughter-booths opposite to it, from which the carcasses are transferred direct. The hide and tallow stores are also within the slaughterhouse. The tripery belongs to the Corporation, and all bovine tripes must be taken there immediately after slaughter for cleansing. There is a separate staff appointed to attend to the general cleanliness and sanitation of the slaughterhouse. An interesting feature in Dundee is the fact that four-fifths of the slaughtering is done by killers who are licensed by the local authorities and who are under control of the superintendent. The following is taken from Dr. Dittmar's Report :

"There is a special condemned-meat shed, where all meat, &c., is taken after condemnation, and the key of which is kept by the superintendent. Before being sent to the manure works, meat is here cut into small pieces and soaked with strong disinfectant fluids, carbolic acid, picric acid and sulphate of iron being used for this purpose."

Meat Inspection at the Slaughterhouse. "The staff employed at the slaughterhouse in the work of meat inspection consists of (1) a qualified veterinary surgeon, (2) a superintendent who holds the certificate of the Royal Sanitary Institute as an inspector of meat and other foods, and (3) an assistant superintendent, uncertificated, but with over twenty years' experience of this special work. All these officials are full-time officers of the Local Authority, and the superintendent of the slaughterhouse has quarters there. The veterinary surgeon also visits the markets and inspects the living animal, in addition to examining the meat after slaughter.

"In addition to general supervision, compiling statistics, &c., the superintendent's chief duty is to inspect every carcase, and the internal

organs thereof, before it is removed from the slaughterhouse. Mr. Baxter, the present superintendent, has been in the slaughterhouse, first as assistant and latterly as superintendent, for the period of thirty years—since the slaughterhouse was built, in fact.

“The internal organs are carefully scrutinised and dealt with according to circumstances; thus, if obviously healthy and normal in appearance they are not incised, but this is done if there be any evidence of abnormality or of disease. The carcase is carefully examined in each case, the general condition noted, and special care is exercised in the examination of the serous linings of the thoracic and abdominal cavities.”

Action taken as a Result of the Superintendent's Inspection. “If, after his examination, the superintendent comes to the conclusion that a carcase is sound and healthy in all respects, he passes it. If there be any condition in a carcase that appears to him to require further and more detailed examination, the carcase and internal organs thereof are removed to a special booth that is reserved for the purpose, and detained there until the veterinary surgeon has seen them and said what is to be done with them.

“Cases of very extensive tubercular disease are, I understand, not invariably submitted to the veterinary surgeon's examination, as there can be no doubt what should be done with such. Nor, for example, is the veterinary surgeon asked to inspect every liver affected with the distoma hepaticum before it is dealt with.

“But in all cases where the tubercular affection is of minor degree, in which it is desirable to have a professional opinion (or where the owner of the carcase desires it), and in all cases other than tuberculosis in which any deviation from the normal has been observed by the superintendent, the carcasses and internal organs are subjected to inspection by the veterinary surgeon. Only in exceptional circumstances is the medical officer of health called in to inspect a carcase, and as often as not, I understand, this occurs at the request of and for the satisfaction of the owner.

“Where an owner is not satisfied with the veterinary surgeon's opinion, he is given every opportunity to obtain a second opinion on his own behalf. As a matter of fact this is only rarely resorted to, and in no case has the consulting veterinary surgeon been in a position to overturn the decision come to by the city's officials.

“Carcasses, &c., seized by the veterinary surgeon or by the superintendent are always condemned by magistrate's warrant before being taken to the condemned-meat room and there dealt with in the manner already described.

“Anthrax carcasses are destroyed by fire in the slaughterhouse furnace, under licence from the Board of Agriculture and Fisheries.”

Principle on which the Veterinary Surgeon Acts. “I asked the veterinary surgeon on what principle he acted in the condemnation of carcasses affected with tuberculosis, and he informed me that in the case of bovines he judged each case by itself, and that his action depended on the patho-

logical condition found after detailed examination of the carcase and internal organs and on the general condition of the carcase.

“The recommendations of the Royal Commission on Tuberculosis of 1898 are regarded as a kind of general guide.

“In regard to pigs affected with tubercle, the veterinary surgeon follows the recommendations of the Royal Commission and condemns the whole carcase and internal organs, even in cases where, to the naked eye, the disease appears to be localised.

“In Dundee for the last four or five years the lymphatic glands of the throat have been incised in the case of all pigs slaughtered at the public abattoir in order to look for evidence of tubercle ; but very few are found affected.

“I understand that in the surrounding district milk is not used as pigs’ food to any great extent, and most pigs’ food is boiled.

“As in the case of other animals slaughtered in Dundee, the internal organs and the serous membranes of all pigs slaughtered are carefully scrutinised, but, unless there be some indication pointing thereto, the lymphatic glandular system generally (with the exception of the throat glands) is not examined in detail. If an abscess were discovered in the throat glands, possibly acute and not tubercular in nature, the other lymphatic glands of the body would be examined for evidence of tubercle, and if this were found the carcase would be condemned, but if not the affected parts only would be cut out.”

Examination of Dead Meat brought into Dundee. “Since 1894 there has been in force in Dundee a method of inspection of dead meat that possesses some of the elements of the ‘clearing-house’ system. This is, however, combined with shop inspection and examination of carts, &c., in transit as well. The passing of any dead meat on examination does not preclude its seizure later on if found to be unsound (say) on shop inspection.

“But the principle of the clearing-house has been adopted to this extent—that consignments of dead meat are submitted to examination before being taken to the retailer ; and in the opinion of the officials concerned it works in a satisfactory manner.

“The work is done under the ‘Additional Rule, Order, and Regulation relative to Dead Meat brought into the City, of 12th February, 1894,’ which is to the following effect :

‘ ‘At Dundee, the twelfth day of February, Eighteen hundred and ninety-four years ; which day The Commissioners of Police for the Burgh of Dundee, being assembled, did, and hereby do, in virtue and in exercise of all statutory powers competent or available, make and enact the following additional Rule, Order and Regulation relative to the matter aftermentioned, and also enact the penalty aftermentioned for enforcing the same, that is to say :

“ ‘ 1A. All Dead Meat brought or sent into the Burgh for sale or consumption there shall, first of all, be brought or sent to the Slaughterhouses of the Commissioners at Carolina

Port, Dundee, and the said meat, and the meat of all animals killed in the said Slaughterhouses, shall be examined in the Slaughterhouses by an Inspector appointed by the Commissioners. If such Dead Meat and Meat be found sound and fit for consumption, it shall be passed by such Inspector. If, on the other hand, it be found unsound, it shall be forthwith destroyed by or at the sight of the Inspector.

“ ‘ 2A. Every person who shall be convicted of a breach or contravention of the foregoing Rule, Order, and Regulation shall be liable in a penalty not exceeding twenty shillings. The said penalty shall be recoverable on the complaint of the Procurator-Fiscal of the Police Court of the Burgh or the Chief Constable of the Burgh, and by the same mode of procedure and in the same manner as other fines and penalties are recoverable under the Police Statutes applicable to the Burgh.

“ ‘ JAMES LOW, *Commissioner*.

“ ‘ WILLIAM DOIG, *Commissioner*.

“ ‘ THOS. THORNTON, *Clerk*.’

“ In practice there is an arrangement by which the railway companies send weekly returns to the Corporation of all meat imported by them, and of its destination in the city. These are compared with the actual deliveries at the slaughterhouse to ascertain if all the meat imported has actually been brought for inspection. If anything is found amiss it is at once followed up.

“ Dead meat consigned to meat salesmen from the country districts outside Dundee is seen in the process of unloading within the slaughterhouse gate, and if the superintendent observes anything that arouses his suspicion he has it removed to the booth that is set apart for the inspection of carcasses, where the veterinary surgeon can examine it.”

Inspection of Dead Meat. “ But even when the dead meat is not consigned to meat salesmen in the dead-meat market, it is as a matter of routine brought to the slaughterhouse first to be there inspected before being disposed of for human food. The officials concerned are convinced from experience that practically all, if not actually all, the dead meat consigned from the country is first brought to the slaughterhouse for inspection in accordance with the ‘ Additional Rule, &c.,’ made for this purpose. The sanitary inspector’s staff, whose duty it is to examine carts, &c., in transit, are convinced that almost invariably this is done, and they practically never come across a cart now that is not on its way to the slaughterhouse. The people, it is said, have become accustomed to it, and conform to the ‘ rule ’ as a matter of course. If any one were trying to run in a carcase without submitting it to preliminary inspection at the slaughterhouse the officials have reason to believe that they would soon hear of it, and they could take the necessary steps. But, as a matter of fact, they are hardly ever called upon to do so.

“ In regard to an animal at a farm that dies suddenly from no very

definite cause, the veterinary surgeon states that the farmer is so afraid of anthrax that he will not, as a rule, touch the carcass, but sends it either to a knackery or to the public slaughterhouse, where it can be 'dressed' in the special booth set apart for the purpose under skilled supervision. Under the Anthrax Order the farmer must report all sudden deaths to a constable in his district, through whom the medical officer of health is informed.

"An animal that is bled at a farm after an accident, such as a broken limb, is usually sent to the slaughterhouse as a whole carcass with all its thoracic and abdominal organs to be 'dressed' there."

A Method that Works Well. "All pieces of dead meat that show any evidence of stripping of serous membranes on arrival at the slaughterhouse are straightway condemned. A piece of meat without serous membranes, such as a fore-limb and shoulder-girdle or a hind leg, is not as a rule submitted for examination. In cases where it is, the musculature is carefully examined as to its general condition, amount of the inter-muscular fat, &c., and a microscopic preparation from the blood is made and stained for anthrax bacilli.

"The throat glands of the carcasses of all pigs sent in are incised to discover tubercular affection, as is done in the case of pigs slaughtered on the premises.

"The veterinary surgeon's opinion is that the method in use in Dundee works well in practice, and that people are quite willing to submit dead meat to official inspection at the risk of having it condemned, provided they are not subject to being fined if it be found diseased or unsound.

"In regard to 'frozen' and 'chilled' beef and mutton from the colonies and foreign countries, this is all consigned to Dundee from Liverpool and London. Large consignments of frozen meat are taken direct to the cold stores and are not examined on their way there. But they are removed to shops from cold storage in smaller quantities and are then examined at the slaughterhouse, which is close to the cold store and on the way to the city from there. Chilled meat is consigned in small quantities at a time to the dead-meat market and seen there. Individual traders who get consignments send it to the slaughterhouse first for official inspection.

"In regard to cases of boneless meat, it is sampled regularly and systematically."

Inspection of Meat and Food Outside the Slaughterhouse. "The general inspection of meat and food-stuffs in the city is under the jurisdiction of the sanitary staff, and there are two of the sanitary inspectors who devote their whole time to shop, &c., inspection. One of these men was a practical butcher, and is also a qualified sanitary inspector, holding both the diploma of the Royal Sanitary Institute and also the equivalent Scottish qualification.

"The other food inspector has had wide experience, and has been on the staff since 1891.

"All provision dealers', butchers', and fish shops, and all dairies, are

systematically visited by these officers. On an average butchers' shops are visited once a week, and everything in the shop, both back and front, is inspected on the occasion of these visits.

"There is one large cold-storage depot in the city, largely used by the local traders in warm weather, and this is also regularly visited. Some of the butchers in the city have a cold store in their own premises.

"Carts are also examined in transit, but since the institution of examination of dead meat at the slaughterhouse this has not been called for to nearly the same extent as formerly. The sanitary inspector is convinced, from his own experience, that there is not the same tendency to try to pass diseased meat as there was before it was an understood thing that goods must first be submitted at the slaughterhouse for preliminary inspection as to their fitness for human food."

How Meat is Dealt with. "All meat condemned as unfit for human food is dealt with in the steam digester belonging to the town council in the slaughterhouse. Carcases affected with anthrax are destroyed in the refuse-destructor.

"It is interesting to be told (as I was by the superintendent) that of about 150 head of cattle killed per week in the public slaughterhouse, only some twelve are cows."

HAMILTON

We have already had occasion to refer to the excellent work done by the M.O.H., Dr. J. Wilson, and his staff in this district, especially in connection with the methods of inspection carried out, and in particular with the system adopted of filling up the particulars of every carcase upon a special form supplied for that purpose (*see* page 804, Vol. III.). Dr. Wilson's annual report for 1908 contains a great deal of very valuable information, and we quote from this report the following paragraphs :

"The Public Health Committee granted renewal of licences to occupiers of all private slaughterhouses, except the licence for premises at Crossford.

"The three public slaughterhouses and some of the private slaughterhouses were from time to time inspected during the year by the medical officer and by the veterinary surgeon, as well as by the sanitary inspectors."

Carlisle Public Slaughterhouse. "These premises were opened on 24th November, 1903. The amount of business done each year during 1904-1908 is given in the following Table :

	1904.	1905.	1906.	1907.	1908.
"Cattle . . .	874	866	852	886	910
Calves . . .	1102	1044	1108	1454	1482
Sheep . . .	1161	1038	962	1017	1137
Swine . . .	1060	1012	971	1025	1169

"The following Table shows the proportion of carcases totally or partially condemned as unfit for human food :

Class of animals.	Total number slaughtered.	Carcases totally condemned.	Carcases partially condemned.	Carcases in which organs only were condemned.
Oxen, bulls, heifers .	677	—	2	—
Cows	233	12	9	—
Calves	1482	—	—	—
Sheep	1137	1	—	1
Swine	1169	2	13	3
Total	4698	15	24	4

“ This shows that fifteen carcasses, mostly cows, were totally condemned, while in four instances only the organs were condemned. These condemnations were mostly due to the presence of tuberculosis.”

Douglas Public Slaughterhouse. “ These premises were opened about the middle of August 1903. The amount of business done each year during 1904–1908 is given in the following Table :

	1904.	1905.	1906.	1907.	1908.
“ Cattle	248	222	220	212	191
Calves	31	25	22	14	41
Sheep	369	369	264	300	409
Swine	34	24	23	19	7

“ Two carcasses of bullocks were partially condemned on account of tuberculosis.”

Lesmahagow Public Slaughterhouse. “ These premises were opened on 10th April, 1905, and the amount of business done from that date up to 2nd January, 1909, is given in the following Table :

	1905.			1906.			1907.			1908.	
	From April 10.										
“ Cattle	461	..	648	..	739	..	740				
Calves	3	..	2	..	4	..	—				
Sheep	477	..	618	..	2818	..	11,062				
Swine	48	..	58	..	74	..	62				

“ The carcase of one cow was totally condemned.

“ Carcasses of six cows and one bullock were partially condemned on account of tuberculosis. In two instances the organs only were condemned, as the carcasses themselves were free from tuberculosis.”

Private Slaughterhouses. “ The total number of private slaughterhouses at the beginning of the year was thirty-four. Of these, thirty-three received renewal of licences from Whit Sunday, 1908, and are situated thus : Strathaven, seven ; East Kilbride, one ; Stonehouse, three ; Newarthill, two ; Chapelhall, one ; Bothwell, two ; Cleland and Omoa, five ; Cambuslang, one ; Shotts, four ; Caldercruix, one ;

Longriggend, one ; Baillieston, two ; Harthill, two ; and Tillanburn, by Holytown, one.

“ Inspections of the private slaughterhouses were made by the sanitary staff, and amounted to 981. The complaints made related to the want of whitewashing at the periods stated in the bylaws.

“ At the private slaughterhouses and sale shops throughout the district the local inspectors made frequent examinations. In this way 9484 lb. of butcher-meat were seized and destroyed.

“ On 31st January the carcase of a cow, belonging to a butcher at Longriggend, was seized in the sale shop occupied by him there, and, being found affected with general tuberculosis, was condemned and destroyed by warrant of the sheriff. Legal proceedings were instituted, and accused fined £25, with the alternative of one month’s imprisonment.

“ On 12th March the carcase of a cow, belonging to a butcher at Larkhall, was seized, and, being found affected with general tuberculosis and unfit for human food, was wholly condemned and destroyed by warrant of the sheriff. Legal proceedings were taken, and the accused was fined £20, with the alternative of one month’s imprisonment.

“ On 13th March the carcase of a cow, belonging to another butcher at Larkhall, was seized in a shed adjoining the private slaughterhouse in Wellgate Street. After examination the two forequarters, flanks, and head were condemned as unfit for human food, and destroyed by warrant of the sheriff. Proceedings were taken, and accused fined £7, or one month’s imprisonment.

“ On 20th March the carcase of a cow, belonging to a third butcher in Larkhall, was seized, and being found unsound and unfit for human food, was destroyed by warrant of the sheriff. Proceedings were taken, and accused fined £10, or one month’s imprisonment.

Public Slaughterhouses. “ Three public slaughterhouses are now in operation. The first and largest, situated at Bellshill, was opened on 16th November, 1903 ; the next, situated at Blantyre, was opened on 16th September, 1907 ; and the third, situated at Larkhall, was opened on 2nd November, 1908.

“ In pursuance of the policy adopted some years ago to abolish all private slaughterhouses, the committee have had under consideration the erection of public slaughterhouses in other parts of the district.

“ A second special report on the general question of slaughterhouse accommodation throughout the Middle Ward district was prepared by the medical officer of health on 7th November, and submitted to the committee.

“ A special report, dealing with the provision of public slaughterhouses at Uddingston, Stonehouse, and Strathaven, was also submitted on 17th December, and during the current year the committee have decided that the erection of public slaughterhouses at Uddingston and at Stonehouse should be proceeded with.

“ The work done in the public slaughterhouses during 1908 is briefly summarised :

Bellshill Slaughterhouse. “The Tables given in the report show in detail the class of animals slaughtered, and the extent to which disease was prevalent. From Table I. it will be seen that during the year the total number of animals slaughtered was 9808, being an increase of 293 over 1907. It was found necessary to condemn either the organs or some portion of the carcasses of 1046 animals. Of the 1046 animals, 533 were affected with tuberculosis. The organs of sheep condemned were mostly livers affected with distomatosis.

“TABLE I. ANIMALS SLAUGHTERED, NUMBER HAVING CARCASSES WHOLLY OR PARTIALLY CONDEMNED AND NUMBER HAVING ORGANS ONLY CONDEMNED

Animals slaughtered.		Animals having condemned carcasses.		Animals having condemned organs.	Total.
Class.	Number.	Wholly.	Partially.		
Cattle . . .	2734	31	63	637	731
Calves . . .	599	5	—	3	8
Sheep . . .	5799	2	2	269	273
Swine . . .	676	1	—	33	34
Totals . . .	9808	39	65	942	1046

“TABLE II. ANIMALS AFFECTED WITH TUBERCULOSIS, CLASSIFIED ACCORDING TO THE EXTENT OF THE DISEASE

Animals slaughtered.		Animals having condemned carcasses.		Animals having condemned organs.	Total.	Per cent.
Class.	Number.	Wholly.	Partially.			
Oxen . . .	1105	4	3	48	55	4.9
Bulls . . .	205	1	2	12	15	7.3
Cows . . .	672	21	40	278	339	50.4
Heifers . . .	752	3	10	71	84	11.1
Calves . . .	599	4	—	3	7	1.1
Sheep . . .	5799	—	—	—	—	—
Swine . . .	676	1	—	32	33	4.8
Totals . . .	9808	34	55	444	533	5.4

“Table II. shows to what extent tuberculosis was present in each class of animal, that the animals affected were chiefly bovines and only a few were swine. In thirty-four animals the disease was so extensive

that the whole carcass was condemned, and in fifty-five animals partial condemnation was necessary.

"Referring to the organs affected, it is of interest to note that there was marked tuberculosis in the substance of the udder in thirteen cases, and in six cases the lesions were evident only in the supramammary lymphatic glands, being nineteen cases in all, or 2.8 per cent of the total cows slaughtered.

"Table III. shows the other diseases which affected the animals, and for which condemnation was necessary.

"Cases of emergency slaughtered animals were few during the year, probably due to an order under the Contagious Disease (Animals) Act, prohibiting farmers from removing cases of sudden illness without a certificate from a veterinary surgeon certifying that there was no contagious disease present.

"TABLE III. OTHER DISEASES FOR WHICH CARCASSES WERE TOTALLY OR PARTIALLY CONDEMNED

Diseases.	Bulls.	Oxen.	Heifers.	Cows.	Calves.	Sheep.	Total.
' Peritonitis, partial	1	—	—	—	—	—	1
Pleurisy, partial .	—	—	1	—	—	—	1
Injury, partial .	—	1	—	5	—	2	8
Septic metritis .	—	—	—	1	—	—	1
Gastro-enteritis .	1	—	—	—	—	—	1
Distomatosis .	—	—	—	—	—	1	1
Asphyxia . .	—	—	—	—	1	1	2
Totals	2	1	1	6	1	4	15

"The following is quoted from the superintendent's report to the medical officer of health :

" "One heart was condemned on account of cysticercus bovis (the intermediate stage of the human tape-worm; *tænia mediocanellata*), and, contrary to expectations, there was not a single cyst to be found in any other part of the carcass, every muscle in which this parasite is usually found having been examined carefully. The masseters, in which the largest percentage is always found (according to statistics from countries where this parasite is more commonly found), were cut into shreds. I also saw the carcass cut up in the butcher's shop, but withal not a single cyst, in any form, could be found. There were eight or nine degenerated cysts in the muscles of the heart ; they were, in fact, calcified, of yellow colour, and highly resembled tuberculous lesions. Consequently I took the heart to the county laboratory and selected one of the softest lesions, which was removed by Dr. Paterson, who, after demonstration, certified the lesions as that caused by the cysticercus bovis. The animal was about two years old, and had been reared in the district.

" "During the year twenty-seven fœtuses, almost mature, were destroyed.

“ ‘ *Prevention of Cruelty to Animals.* As this subject is receiving considerable attention in the meantime, it might not be out of place to record what is being done here. In the first place, the structural arrangements in the lairage and booths are of the most modern type, and the floors, particularly in the booths, are constructed of the best known material for prevention of slipping. The light and ventilation are perfect. There is always a sufficient supply of water, both in the lairage and field. A supply of hay is kept in the premises, and if the owner does not attend to the feeding, it is attended to by the slaughterhouse staff, and a charge is made for the hay.

“ ‘ *Slaughtering.* All cattle are fastened by a rope to a stake in the booth, and are stunned either with Greener’s Humane Cattle-killer or a pole-hammer, strong-headed animals, such as bulls and aged bullocks, being put down with the former and light cattle with the latter. All calves are stunned before being bled, as also are swine. Sheep are struck and pithed as is the common practice in this country. I have experimented on this subject, and find that sheep could be stunned before bleeding just as conveniently as any other animal, consequently I see no reason why this should not be done. The most evident difficulty would be to enforce the regulation, which no doubt could be got over with a little push, and in time would become as natural to the killer as the stunning of other animals.’ ”

Blantyre Slaughterhouse. “The amount of business done for the year 1908 is shown in Table I.

“TABLE I. ANIMALS SLAUGHTERED, NUMBER HAVING CARCASSES WHOLLY OR PARTIALLY CONDEMNED AND NUMBER HAVING ORGANS ONLY CONDEMNED

Animals slaughtered.		Animals having condemned carcasses.		Animals having condemned organs.	Total.
Class.	Number.	Wholly.	Partially.		
Cattle . . .	1612	14	75	149	238
Calves . . .	143	1	—	—	1
Sheep . . .	2682	6	—	75	81
Swine . . .	124	—	10	3	13
Totals . . .	4561	21	85	227	333

“It was found necessary to condemn either organs or some portion of the carcasses of 333, or 7. per cent. of the total.

“Table II. shews that, of the 333 diseased animals, 273, or 5.9 per cent. of the total slaughtered, were affected with tuberculosis, four of which were totally and eighty-five partially condemned.

“TABLE II. ANIMALS AFFECTED WITH TUBERCULOSIS CLASSIFIED ACCORDING TO THE EXTENT OF THE DISEASE

Animals slaughtered.		Animals having condemned carcasses.		Animals having condemned organs.	Total.	Per cent.
Class.	Number.	Wholly.	Partially.			
Oxen . . .	418	—	3	7	10	2.3
Bulls . . .	53	—	—	5	5	9.4
Cows . . .	1012	4	68	165	237	23.4
Heifers . . .	129	—	4	4	8	6.2
Calves . . .	143	—	—	—	—	—
Sheep . . .	2682	—	—	—	—	—
Swine . . .	124	—	10	3	13	10.4
Totals . . .	4561	4	85	184	273	5.9

“Table III. shows the other diseases which affected the animals, and for which condemnation was necessary. The Table itself is sufficiently explanatory.

“TABLE III. DISEASE FOR WHICH ANIMALS WERE TOTALLY OR PARTIALLY CONDEMNED

Diseases.	Bulls.	Oxen	Cows.	Calves.	Sheep.	Total.
Pyæmia . . .	—	—	5	—	—	5
Septic peritonitis . . .	—	—	2	—	—	2
Pneumonia . . .	—	—	—	—	2	2
Dropsy . . .	—	—	1	—	1	2
Injury . . .	1	1	—	1	3	6
Totals . . .	1	1	8	1	6	17

Larkhall Slaughterhouse. “The amount of business done up to the end of the year is shown in Table I.

“TABLE I. ANIMALS SLAUGHTERED : NUMBER HAVING CARCASSES WHOLLY OR PARTIALLY CONDEMNED AND NUMBER HAVING ORGANS ONLY CONDEMNED

Animals slaughtered.		Animals having condemned carcasses.		Animals having condemned organs.	Total.
Class.	Number.	Wholly.	Partially.		
Cattle . . .	268	5	36	54	95
Calves . . .	23	—	—	—	—
Sheep . . .	288	—	—	22	22
Swine . . .	39	—	3	2	5
Totals . . .	618	5	39	78	122

“ It was found necessary to condemn either organs or some portion of the carcasses of 122, or 19.7 per cent. of the total.

“ Table II. shows that, of the 122 diseased animals in Table I., seventy-six, or 12.2 per cent. of the total slaughtered, were affected with tuberculosis, four of which were totally and thirty-eight partially condemned.

“ TABLE II. ANIMALS AFFECTED WITH TUBERCULOSIS CLASSIFIED ACCORDING TO THE EXTENT OF THE DISEASE

Animals slaughtered.		Animals having condemned carcasses.		Animals having condemned organs	Total.	Per cent.
Class.	Number.	Wholly.	Partially.			
Oxen } Bulls } Heifers }	107	—	4	3	7	6.5
Cows . . .	161	4	31	29	64	39.7
Calves . . .	23	—	—	—	—	—
Sheep . . .	288	—	—	—	—	—
Swine . . .	39	—	3	2	5	12.8
Totals . . .	618	4	38	34	76	12.2

“ Table III. shows the other diseases which affected the animals, and for which condemnation was necessary.

“ TABLE III. OTHER DISEASES FOR WHICH CARCASSES WERE TOTALLY OR PARTIALLY CONDEMNED

Diseases.	Cows.	Total.
“ Fibroma	1	1
Acute pleurisy and pericarditis .	1	1
Totals	2	2

“ The case of fibroma might be specially mentioned. The nodules appeared in practically every part of the voluntary muscular system, and varied in size from a pin-head to a Brazilian nut.”

FALKIRK

The following is Dr. Dittmar’s report on Falkirk :
“ There is a public slaughterhouse in Falkirk, belonging to and managed by the Corporation.
“ The slaughterhouse was erected in 1873, and has been considerably altered since that date. The public killing-chamber is spacious and lofty, and has a concrete floor, while the walls are lined to a height of six feet with smooth cement faced with white Ripolin paint.

"There is an ample water-supply. Beyond the killing-chamber is a large and spacious chamber completely lined with white glazed tiles, where meat is hung after slaughter and where it can be readily inspected. There are two private booths of similar structure to the public one; they are let out each year to the highest bidder, and are for the exclusive use of the firm that obtains them. The possession of a private booth carries with it no right to sub-let, and the keys are kept by the superintendent, who has the same right of entry as in the case of the public booth.

"There is a separate sheepery, with lairage and hanging space for the carcasses. Calves are killed in this part.

"Special accommodation is provided for dealing with pigs.

"The byres are airy and well constructed, providing sufficient accommodation for cattle. Drinking-troughs are provided.

"There is a tripery in connection with the slaughterhouse, under the management of the Corporation.

"The blood produced is dealt with by a contractor, and gut-scraping is also under the direction of contractor, special accommodation being provided for these purposes.

"The dungstead is emptied regularly by the Local Authority."

Condemned Carcasses disposed of in Steam Digester. "There is a steam digester for dealing with condemned meat. This plant belongs to the Town Council.

"If a carcase infected with anthrax be too large for the digester, it is buried (to prevent cutting up) in some waste ground close by the slaughterhouse, under licence from the Board of Agriculture and Fisheries.

"The superintendent of the slaughterhouse has been twelve years in office, and is a full-time officer of the burgh. He has free quarters at the slaughterhouse. Under him is a man who attends to the scavenging and cleansing of the premises. In addition, the staff employed at the tripery are under the superintendent's direction. His duties are :

"(1) To supervise generally and attend to cleanliness and order in the slaughterhouse.

"(2) To keep books."

PAISLEY

The procedure in Paisley according to Dr. Dittmar's report is as follows :

"There is a public slaughterhouse in Paisley, which calls for no comment in respect of structure and equipment. It is sufficient for its purpose and well equipped.

"The superintendent is a whole-time official, and has a dwelling-house at the slaughterhouse. His duties are :

"(1) To keep order generally, and attend to the cleanliness of all parts of the slaughterhouse.

“(2) To keep books.

“(3) To inspect all meat before its removal from the slaughterhouse.

“The superintendent is a butcher by trade; in addition, he holds the certificate for meat inspection of the Royal Sanitary Institute, and also the certificate of the Sanitary Association of Scotland.

“Under the superintendent are two men who attend to the cleansing, &c., of the premises. There is also under his direction a staff in the tripery, where all the tripe intended for sale in the burgh is cleaned, including that brought in from places outwith the boundary.”

Procedure in Connection with Diseased Meat. “When the superintendent observes anything in connection with a carcase that requires attention, he summons the veterinary surgeon of the burgh to inspect it. Meantime the suspected material and the viscera belonging to the carcase have been removed to a special room set apart for the purpose. The veterinary surgeon records in a book his opinion of the meat, and, if he condemns the same as unfit for human food, he enters the ground of his condemnation in a book kept for the purpose. He also fills in a certificate, which is sent to the sanitary inspector, who takes the further steps necessary.

“If the owner consent to destruction of the meat condemned, he signs a form authorising the Local Authority of Paisley, or their sanitary inspector, to destroy.

“(4) To see all animals on arrival at, and to inspect all carcases before removal from the slaughterhouse.

“If a carcase is healthy, it is allowed to be removed. If the superintendent observe anything the matter with a carcase or any condition that excites his suspicion, he detains it for inspection and summons the veterinary surgeon approved under section 43 of the Public Health Act either by telephone or by leaving a note at his house requesting his presence.

“The organs belonging to the carcase are forthwith removed to a special room, of which the superintendent has the key; the carcase itself is seen in the cooling-room, to be removed after inspection to a special room, if condemned by the veterinary surgeon.”

Veterinary Surgeon Visits the Slaughterhouse. “The veterinary surgeon calls if passing the slaughterhouse, but as a rule he is summoned almost daily. A note of the cause of condemnation is entered by him in a book kept in the superintendent’s office.

“In regard to meat affected with tuberculosis, while acting according to his own judgment in each case, Mr. Bell says that he follows in the main the recommendations of the Royal Commission on Tuberculosis of 1898, both in the case of bovines and of pigs. In the case of carcases of pigs, he continues the neck incision to the symphysis of the lower jaw and examines the lymphatic glands.

“After condemnation, the superintendent informs the owner and obtains his written consent to destruction. Consent having been

obtained, the material is removed to the digester, where the fat is extracted, and the waste material dealt with for trade purposes (sold to bone-mills, &c.). If an owner should refuse to give his consent to destruction, the sanitary inspector is communicated with, and he obtains a warrant for destruction.

“No butcher has ever disputed a case in a court of law.”

DUMFRIES

The public slaughterhouse at Dumfries is also used by almost all the butchers of Maxwelltown. Here the superintendent, not being a veterinary surgeon, is assisted by the sanitary inspector and, if necessary, by the M.O.H. and the burgh veterinary surgeon.

The following paragraphs are taken from Dr. Dittmar's Report :

“There is only one slaughterhouse in Dumfries, which belongs to the Town Council. All the butchers of the neighbouring burgh of Maxwelltown, with one exception, slaughter in it. He has a private slaughterhouse in Maxwelltown, the only one in that burgh.

“There are no butchers within two miles of the burgh of Dumfries and the local butchers supply a considerable area in the county beyond the burgh boundaries.

“The superintendent of the slaughterhouse is a butcher by trade, and he devotes his whole time to the duties of his office. Under him is a labourer who attends to the cleansing, &c., of the place.

“The superintendent's duties are :

“(1) To inspect *all meat* before it leaves the slaughterhouse.

“(2) To exercise a general supervision over the slaughterhouse and be responsible for order and cleanliness, &c.

“(3) To keep books.”

Action in Case of Unsound Meat. “If in any case the superintendent is of opinion that any meat is diseased, unsound, or unfit for human food, he acquaints the owner thereof and detains the meat for inspection.

“The sanitary inspector is summoned to see any meat so detained, and he acquaints the owner with his opinion thereon after inspection.

“If the owner agrees to sign it over for destruction, the meat is then rendered unfit for human food by being cut up and saturated with carbolic acid, after which it is disposed of with the town's refuse. Should the owner not agree to abide by the sanitary inspector's decision in any particular instance, he would call in the medical officer of health and the veterinary surgeon appointed by the burgh, and they would decide what further steps were necessary in the public interest.

“As a matter of fact, it has not been necessary to take this further step during the past eleven and a half years.

“The chief cause for condemnation of meat is the presence of tuberculosis in the carcase, and the sanitary inspector follows the standard recommended by the Royal Commission on Tuberculosis in condemning carcasses or portions thereof inspected by him.

“Considerable numbers of sheep, estimated at fifty thousand per annum, are killed in Dumfries for the London market. Sheep are also killed for Glasgow, but this is not a large trade.

“For Newcastle, about forty calves are killed weekly in the early months of the year.

“Meat intended for parts of the country outside Dumfries is not stamped, but it has all been inspected before leaving the slaughterhouse.”

STRANRAER

The public slaughterhouse, which is under the control of the Town Council, is supervised by a superintendent, a butcher, who gives his whole time to inspection and general management. The procedure, according to Dr. Dittmar's report, is as follows :

“There is a public slaughterhouse in the burgh belonging to and under the control of the Town Council. The superintendent, a butcher by trade, devotes his whole time to the duties of his office. He does no killing himself, but confines himself to examining every carcase before removal, and to general superintendence of the establishment.

“All carcasses are inspected by the superintendent before removal. If he observe anything that excites his suspicion he draws the owner's attention thereto, and, if he agrees, it is signed over for destruction by the Local Authority. If the owner does not agree to sign it over, the superintendent calls in the veterinary surgeon to the burgh, Mr. M'Kinlay, who inspects and gives his opinion on the matter in dispute. If, in the opinion of the veterinary surgeon, the meat is unfit for human consumption, he certifies accordingly, and a warrant is obtained for its seizure and destruction. Mr. M'Kinlay informed me that he is called in thirty to forty times a year to examine meat detained for inspection by the superintendent of the slaughterhouse.

“In the case of bovine carcasses the standard for condemnation in the case of tuberculosis followed by the veterinary surgeon is that of the Royal Commission on Tuberculosis, 1898. In the case of pigs, Mr. M'Kinlay, who was trained in meat inspection in Glasgow, follows Mr. Trotter's guidance.

“All meat, &c., condemned is cut up, mixed with chloride of lime, and packed in barrels, which are sent to a chemical manure work.

“Animals are killed both for the local and outside markets. Calves are killed in Stranraer slaughterhouse in considerable numbers in the early part of the year for the Glasgow market and for England. Sheep are occasionally killed for English markets. All meat for outside markets is examined as well as that for local use. But meat for other places than Stranraer is stamped ‘Examined’ by the veterinary surgeon, and the superintendent also affixes a stamp to the carcase bearing the burgh seal.

“Few pigs are killed in the slaughterhouse ; if killed within two miles of the burgh boundaries dues are collected for them as if killed there.

The trade prefer to kill at the places where the pig is fed. I was informed that large numbers of very young calves (from a day to a week old) are killed at farms and sent mainly to England. These, like most pigs, do not come under official inspection."

ABERDEEN

Meat inspection in the city of Aberdeen is in a sort of transition stage, and recently the Public Health Committee of the Aberdeen Town Council requested the M.O.H. and the sanitary inspector, Professor Matthew Hay, and Mr. Kenneth Cameron, to report upon the subject of meat inspection in the city, especially in connection with the fact that new slaughterhouses are being, or about to be, erected. As we have repeatedly urged in other parts of this work, it is precisely when such circumstances arise that the opportunity offers itself for bringing the meat inspection of the district into line with modern scientific requirements, and it seems to be the opinion of the officials here that the substitution of one large slaughterhouse for the two which previously existed will enable them to make provision for the inspection of meat in a systematic manner so as to cover every carcase, in place of the old and admittedly defective system in force. Up to quite recently one inspector alone has had the whole of the work to do, and no matter how capable and how hard-working such an inspector may be, it is quite impossible for one man to overtake all that should be done.

A Meat and Fishing Centre. Aberdeen is both a large meat and a large fishing centre, and the number of animals slaughtered and of the fish caught is, the report states, far in excess of local requirements. The fish market requires to be visited every morning by a food inspector, and should, indeed, be under the surveillance of such an inspector during the whole time that fish are being landed. Each of the seven slaughterhouses and the two meat-marts ought so to be supervised that no carcase should leave the premises without previous inspection. There are also numerous butchers' shops throughout the city which should be regularly inspected, as meat may reach them direct from country slaughterhouses; and there is a large number of provision-curing and fish-curing works which likewise require to be visited. The frequent visitation of curing works is now the more necessary, inasmuch as all foods exported from them to certain places abroad, such as the Argentine Republic, the United States and the Philippine Islands, cannot be admitted without each consignment being accompanied by a certificate from the M.O.H. that the establishment of the provision-curer is under regular sanitary supervision in respect both of premises and of products. Inspection of fruit, vegetables, flour, cheese and other articles of food is also sometimes necessary, so that there is ample scope for the services of two, if not three, food inspectors. Statistics are given in the report, from the figures in which it is claimed that the staff in Aberdeen is, relatively to the extent of work, much smaller than in any other town.

A Plea for an Additional Inspector. The report suggests that, if the Town Council approve of the appointment of an additional inspector, one of the two inspectors should, subject to the supervision of the M.O.H. and the sanitary inspector, undertake the meat inspection in all the slaughterhouses and the meat-marts, and make use of the office provided for such an inspector in the new slaughterhouse of the Fleshers' Incorporation. This inspector would also visit the cattle-marts so far as might be necessary. The other inspector would undertake the inspection of fish at the fish market and the visitation of all fish-curing and provision-curing works, as also the inspection of butchers' shops, and, generally, all inspections other than those assigned to the first inspector. If the Public Health Committee take the view that a veterinary surgeon should be appointed to one of the inspectorships, it would naturally fall to him to undertake the duties suggested for the existing inspector. The salary of a good veterinary inspector could scarcely be put at less than £175 to £200 yearly. A saving could be effected by conjoining his duties with those of the veterinary inspector at present employed at a salary of £75 in inspecting the cattle in dairies, but this could not be done without considerable spells of absence from his duties as meat inspector.

The Case against Inspectors. The report goes on to say that the allegation made from time to time regarding meat inspection in Aberdeen is, not that the inspector from his want of knowledge fails to recognise and seize diseased or unsound carcasses, but that he seizes too many carcasses; and when this is further probed, the allegation narrows itself to the application of too high a standard in the seizure of particular carcasses. It has not, so far as the reporters are aware, been contended that carcasses have been seized as tubercular that are not tubercular at all. Tubercular disease in cattle is easily recognised, and a year's experience in the slaughterhouses of Aberdeen will make an intelligent layman familiar with the signs of the disease. The real question of difficulty is what degree of tubercle in a carcass may be dangerous to man. That is obviously a matter to be decided chiefly, if not altogether, by medical opinion, based upon the accepted views of those persons who have specially investigated the subject. Fortunately, in this country public health officials have been largely saved the trouble of inquiring minutely into these views for themselves by the investigations and reports of the Royal Commission on Tuberculosis. If the Aberdeen butchers believe that the adoption of the Freibank system would substantially diminish their loss from the seizure of tubercular carcasses, and if the Town Council is willing to provide the necessary cooking and sterilising plant, the reporters have no objection to offer to the system; but it would have to be understood that the cooking and sterilisation must be done by the council, or under its supervision, that the meat must be sold in a special shop, and that only such tubercular carcasses should thus be dealt with as are well fed and do not exhibit extensive evidence of tuberculosis.

A Year's Seizures. Last year, forty-three carcasses of cattle, four carcasses of calves, fifty-six carcasses of sheep and nine carcasses of pigs

were seized, in whole or in part, in the meat-marts. It is evident from the Tables that seizures are fewer in Aberdeen than in most of the other towns. The percentage of carcasses of cattle seized in whole or in part from all causes was : in Aberdeen, 0.82 per cent. ; in Glasgow, 5.48 per cent., or more than six times greater ; in Dundee, 3.1 per cent. ; in Leith, 2.08 per cent. ; in Greenock, 4.63 per cent. ; and in Edinburgh, 0.68 per cent. The Table shows that the proportion of partial to whole seizures in Aberdeen did not differ greatly from that in other towns. In Aberdeen it was, for tubercular carcasses of cattle, very nearly one to three ; in Edinburgh, almost exactly the same ; and in Glasgow and Dundee, one to one and a half. The report also deals with the Tuberculosis Order of 1909, and states that a larger amount of inspection than at present is evidently expected for cattle in sale-yards, and if this is to be done systematically and thoroughly it would occupy a considerable part of the time of a veterinary inspector, and raised the question as to whether the duties of the veterinary inspector of the Corporation might not, when the Order came into force, be extended so as to include the regular visitation of the cattle markets and marts within the city.

It is very interesting to note from the above that the Aberdeen Report suggests the possible adoption of a Freibank, this being, so far as we are aware, the first time such a suggestion has been made in this country by a responsible body.

CHAPTER VI

MEAT INSPECTION IN IRELAND AND ISLE OF MAN

DESPITE the fact that Ireland is to such a large extent an agricultural country, and should, therefore, pay the greatest attention to diseases of cattle, &c., the fact remains that in this department at least the standard, taking the country as a whole, exhibits room for considerable improvement. There are whole districts in which meat inspection is non-existent, but as the same is true of England and Wales it is not astonishing. We append reports of Belfast and Cork, and one concerning the Isle of Man, where meat inspection is a luxury apparently confined to Douglas.

BELFAST

The M.O.H. for Belfast, Dr. H. W. Bailie, to whom we are indebted for our information in regard to this city, writes that "The inspection of meat in Belfast is in a state of transition. Until a few months ago it was under the supervision of the markets committee, but has now been transferred to the care of a public health committee, and I am responsible for the carrying out of the work, the veterinary surgeon and staff being attached to my department. During the past few months we have been engaged in securing a site for a new abattoir situated in a central position convenient to the markets and railway stations. Such a site has now been procured, and a Local Government Board inquiry has been held for the purpose of borrowing funds for the buildings, which I expect will be granted, and we shall immediately commence operations for the erection of a most up-to-date abattoir, embodying all the most approved and modern appliances for the carrying out of the work."

Official Reports. The following paragraphs are taken from the annual report of the veterinary surgeon for 1907-8 and from Dr. Bailie's own report when the question of the transference of the duties was under consideration. This report, and Mr. Jordan's, contains such a large amount of useful information and criticism that we have no hesitation in quoting from it largely, and the report which follows Dr. Bailie's also contains various matters of considerable interest.

"The importance of careful meat inspection requires no words of recommendation from me when it is pointed out that in the public abattoir during the last ten years an average of nearly two hundred carcasses has annually been found diseased and unfit for food, while in the private slaughterhouses I cannot find any record of any seizures having been made. It is obvious that in the latter the same close attention cannot

be given to inspection unless you are prepared to considerably increase your staff of inspectors.

An average of over one hundred carcasses has annually been condemned for tuberculosis, and in the light of recent knowledge the fact has been demonstrated that tuberculosis is a disease readily disseminated by ingestion, hence the necessity for thorough inspection in order to protect the public health.

"There are seven private slaughterhouses in the city, viz., four for cattle and three for pigs.

"There are about eighty provision shops in the city where pork is the principal commodity dealt in.

"In addition to the carcasses brought to the Corporation market, large quantities of pork are brought into the city both by road and rail consigned to merchants.

"There is also the Meat Inspection Department, into which all carcasses (cattle and sheep) killed outside the city are brought for inspection before being exposed for sale, as well as pieces of meat, hearts, livers, &c."

A Suggested Remedy. "It is very doubtful whether all the meat killed outside the city is brought to this centre for examination, but the most effectual remedy for this would be to adopt the system of branding or stamping all meat which has been examined and found fit for human food. This would be a guarantee to the consumers, and would, I believe, secure the examination of practically all meat exposed for sale in the city, and I would respectfully urge your committee to give this measure their serious consideration with a view to adopting it, as I am strongly of opinion that the advantages to be obtained by such a measure would well repay the trouble and expense incurred in removing the legal difficulties which at present stand in the way."

The Inspectors and Their Duties. "There are about four hundred fleshers in the city, and experience has shown that only a very small proportion of them is known to deal in inferior meat.

"For the inspection of meat received into the city at the several depots, railway-stations, &c., six officers are employed. Four of these are wholly employed at meat inspection, while the other two are part of their time employed in carrying out the provisions of the 'Food and Drugs Acts,' and the remaining portion in inspecting meat, provision, fish and fruit shops.

"The officers employed in carrying out the work are as follows: Inspector Adjey (who is also manager of the abattoir) and Inspector Graham are fully employed at the abattoir; Inspector Neeson at the meat inspection department from 8 until 10 A.M., the remainder of the day inspecting private slaughterhouses, butchers' shops and railway stations; and Inspector Murdock is employed in the pork, fish and fowl markets from 8 until about 11 A.M., and the remainder of the day at provision shops and railway stations. As before mentioned, the two inspectors of food and drugs assist in this work by inspecting various kinds of shops and railway stations.

"I have gone into this matter carefully with Mr. Jordan, and while we are agreed that in order to carry out complete inspection the staff is rather limited, I would not advise an increase at present, as there are several circumstances which may alter present necessities very materially.

"For instance, I see by a report of the proceedings of the Belfast Rural District Council that a resolution was adopted to apply for powers to enable the Council to make bylaws and regulate slaughterhouses in their district. If these powers are obtained, and the example followed by other rural councils, there would not be the same necessity for so much inspection in the city. Again, when the new abattoir is erected and the private slaughterhouses abolished, the time of the inspectors now expended in visiting the latter will be saved. And, finally, if the stamping or branding is adopted, the time of the inspectors would again be saved when visiting shops, as they would at once see whether the carcasses had already been examined and passed, and their work would practically be reduced to seeing that the premises were kept in a sanitary condition and that the meat had not become unsound from being over-kept. For these reasons I think any increase in the staff might be postponed for the present.

"The system of having one of the inspectors acting in the dual capacity of meat inspector and manager of the abattoir does not appear to be a good one, and I would recommend that the meat inspectors be entirely relieved from this duty."

(*Note.* The following is the remaining portion of the report which has not yet been considered.)

Tuberculous Carcasses. "Claims for damages by owners of tuberculous carcasses seized and destroyed have become so numerous that it has become necessary to seriously consider the whole question of seizures for tuberculosis.

"The most important questions to be decided are : (1) What extent of tuberculous lesions is to decide the seizure and destruction of a carcase ? and (2) Is the owner of such a carcase to be prosecuted under section 133 of the Public Health (Ireland) Act, 1878 ?

"This might seem a very drastic measure, but something must be done to settle the apparent inconsistency of sections 132 and 133 of said Act, which authorise the seizure and destruction of unsound or diseased meat and the prosecution of the owner, while section 274 of the same Act has been used for the purpose of claiming damages by a number of dealers ; while several cases are at present pending, although I am of opinion that this section was never intended by its framers to secure damages for diseased meat.

"As regards seizures of tuberculous carcasses of cattle, the officers of the department have endeavoured to carry out the recommendations of the Royal Commission on Tuberculosis, as recommended by the circular letter of the Local Government Board.*

"The seizure and destruction of carcasses of tuberculous pigs have

* These recommendations are quoted in the chapter on Tuberculosis (p. 901, Vol. III.).

been governed by the resolution of the Council, dated 20th August 1906, which is as follows :

“ ‘ That in all well-nourished carcasses of pigs where the tuberculosis is strictly confined to the glands of the neck, the head only, or such portion as is affected by the disease, shall be destroyed, the remainder of the carcass being handed back to the owner, and that all carcasses showing unmistakable evidence of the disease shall be destroyed.’ ”

The following extracts are from the Annual Report by the veterinary surgeon, Mr. Jordan, for 1907-8 :

“ Before entering into the details of the work, I desire to take the opportunity of referring to some points of special interest. First may be mentioned the unsatisfactory system under which meat, prepared outside the city boundary, is presented for inspection at the Meat Inspection Department (Grain Market), viz., minus the head, heart and lungs ; and in a great many instances in portions such as roasts, ribs, loins and best steak. In a previous report I pointed out that to secure a thorough examination as to the wholesomeness of meat an inspector must pass under review the whole carcass, which should be accompanied by the viscera.

A Demand for Carcass Examination. “ The most important disease we have to guard against is tuberculosis, and in the majority of cases which come almost daily under my observation at the abattoir I find that the disease is generally found in the serous membrane of the pleural or peritoneal cavities. It will, therefore, be readily seen the absolute necessity of having all meat examined as a whole carcass, including the viscera. Inspection of carcasses without the viscera is unreliable, as in the absence of the guidance which the lesions on the organs afford, one cannot arrive at any definite conclusion. The point to decide is whether the disease is local, that is to say, whether it is confined to one organ or it is spread to other organs by contiguity to the lymphatics or portal system, or whether it has gained the blood-stream and become generalised throughout the body. Seeing the importance of determining whether the disease is generalised or not, it is necessary to make a systematic examination of the organs which give the best indications of the presence of this condition. By the present system there is nothing to prevent a butcher presenting a portion of meat which belonged to an animal suffering from tuberculosis or some other disease which would render it unfit for human consumption, but which, in the absence of the viscera, would in all probability be passed. The Local Government Board have at present under consideration a suggested bylaw which I hope will enable you to enforce that all meat in future submitted for inspection shall be as a whole carcass, including the head, heart and lungs. The Board have also under consideration the question of ‘licensing of butchers’ who use the public abattoir. This is a most important matter, as by so doing better control could be exercised. If it is found that a butcher is unnecessarily cruel or unskilful in slaughtering animals, or that he is

not—from any other cause—a desirable person to be connected with the slaughter and dressing of animals for human consumption, such as one affected with disease or careless in his general appearance, his licence could be cancelled and he prohibited from entering the abattoir. By referring to the minutes of the Markets Committee held on 23rd February 1901, I find it was resolved that all butchers using the public abattoir should pay an annual licence of 2s. 6d. This has been allowed to lapse—why I am unable to explain.”

Private Slaughterhouses. “At present there are seven licensed private slaughterhouses in the city; four of these are used for the slaughter of cattle, sheep, &c., and three for the slaughter of swine. On an average about 3000 head of cattle, 4250 head of sheep and 7979 head of swine are slaughtered annually in these places. The conditions under which these licences are granted require that no animal shall be slaughtered on the premises except between the hours of 1 o’clock A.M. and 6 o’clock P.M.; the viscera must not be removed from the slaughterhouse and the lungs must be left attached to the carcase until 6 o’clock P.M. of the day on which the animal has been slaughtered, unless same shall previous to that hour have been examined and passed by an inspector. These premises are visited daily by an inspector, but it is an astonishing fact that for the past ten years not a single seizure has been recorded. I am strongly in favour of abolishing all such licences; they should not exist on the ground of compensation.”

Inspection of Pork. “The question of inspection of pork coming into the city is one to which I have been giving my fullest consideration since my appointment. When it is considered that these consignments arrive both by rail and road and that these arrivals are so irregular and the routes so numerous, it will, I feel sure, be quite clear that little or no surveillance of a methodical nature can be exercised. Those arriving by rail are packed in trucks in such a manner as to render it impossible to carry out a satisfactory inspection. The railway employees, whilst willing to assist in every way, are compelled to handle their traffic in the most expeditious manner possible, and cannot allow the inspectors the time necessary, even if other conditions—such as tables to lay the carcasses on during inspection and sufficient light—were satisfactory, to examine these carcasses in a satisfactory manner. Consignments of cured bacon are constantly arriving in the city from curers located in the adjacent districts. I have been creditably informed by one of the large pork-buyers in the city that pork, which he has refused to buy in country fairs as being affected with tuberculosis, is at once purchased at a much lower price by local curers in the district, and which I have no doubt ultimately finds its way into our city as bacon; the manipulation which this has undergone at the hands of these curers is such as to render inspection an impossibility. In these country districts no inspection of any kind takes place. This lack of uniformity of inspection is not only a distinct menace to the public health, but it is undoubtedly a very great hardship to our local traders. If the Local Authorities in these

districts could see their way to appoint veterinary inspectors who would inspect all pork passing through their different markets, it would be a decided step in the right direction. I would also suggest that the method of inspection which would, to my mind, be the most convenient and at the same time give the least trouble to the pork merchants in this city, would be to establish a meat inspection depot at each of the railway termini through which all meat coming into the city by rail would have to pass, that coming by road to be taken direct to the inspection station (grain market). This, of course, would necessitate the enlarging of the present station and the increase of the present staff of inspectors."

The Pork Market. "All pork passing through this market is carefully inspected. An inspector attends daily from 8 o'clock A.M. until all pork in the market is inspected. Those presenting lesions of tuberculosis in the lymphatic glands of the neck only are passed after removal of said glands (*vide* resolution of Markets Committee, 28th July 1900), whilst those presenting lesions in the glands of other portions of the body besides those of the neck are condemned.

"The following Table shows the number examined since my taking up duty, together with number wholly condemned, number passed after removal of diseased glands, also number of carcasses condemned for various causes other than tuberculosis :

Number examined.	Tuberculosis.		Wholly condemned for other causes.
	Wholly condemned.	Passed after removal of diseased glands.	
18,330	3	274	4

" ABATTOIR

"During the year there were slaughtered at the above :

Cattle.	Calves.	Sheep.	Goats.	Deer.	Total.
27,446	1176	28,742	591	1	57,956

"The number of carcasses partially or totally destroyed as being unfit for food was :

Cattle.	Calves.	Sheep.	Goats.	Total.
457	47	15	2	521

"During the year the working of this department has been slightly augmented. Hitherto only one meat inspector was in attendance, and when it is considered that on an average about 600 head of cattle and about the same number of sheep, together with a considerable number of calves, goats, &c., are slaughtered every week, sometimes as many as 150 butchers working at the same time, it will be readily recognised that

it was an absolute impossibility for one inspector to give the supervision that was necessary—if the work was to be carried out in a satisfactory and efficient manner—at actual time of slaughter. In addition to meat-inspection duty, this inspector was also responsible for the conduct, cleansing, and disinfecting of the premises ; he also, personally, had to supervise the removal of all condemned meat and accompany same to the knacker’s yard. It will be seen by above that at certain times no inspector was present. It was therefore considered necessary to increase the staff by an additional inspector ; this was done by transferring one of the district inspectors, so that at no time is the abattoir without an inspector, thereby making it practically impossible for a butcher to remove any pathological products or to substitute healthy organs in place of diseased ones.”

Inspection Station (Grain Market). “This station is open daily (Sundays excepted) from 8 o’clock A.M. to 10 o’clock A.M., during which hours an inspector is in constant attendance. All meat killed outside the city and brought into the city for sale must, before being sold or exposed for sale, be brought into this station for inspection. Carcases of meat are brought from the following towns :

“ Armagh.	Lisburn.
Dungannon.	Comber.
Banbridge.	Newtownards.
Saintfield.	Templepatrick.
Hillsborough.	Downpatrick.
Whitewell.	Whitehouse.
Dromore.	Dunmurry.

“ The number of veal carcases brought to this station and also to the abattoir is steadily increasing, owing, no doubt, to a notice which I inserted in the various local newspapers in October last. Previous to this a considerable number were brought into the city and delivered direct to the butcher’s shop without any inspection whatever.

“ During the twelve months under review there were brought to this station for inspection the following :

“ INSPECTION STATION (GRAIN MARKET)

	Beef.			Mutton.		Veal.		Heads.		Tongues.		Hearts.	
	Sides.	Quarters.	Cuts.	Carcases.	Cuts.	Carcases.	Cuts.	Beef.	Mutton.	Beef.	Mutton.	Beef.	Mutton.
Examined .	1772	19	4229	3525	140	69	—	42	—	211	—	1294	2314
Condemned.	22	4	5	4	5	5	—	—	—	—	—	7	—

“INSPECTION STATION (GRAIN MARKET)”

	Lungs.		Livers.		Kidneys.		Miscellaneous.					
	Beef.	Mutton.	Beef.	Mutton.	Beef.	Mutton.	Mesenteries.	Diaphragms.	Stomachs.	Udders.	Pigs.	Rabbits.
Examined .	898	2327	1239	2297	71	—	1315	349	1215	544	3	1
Condemned.	24	18	26	80	—	—	2	3	4	6	3	1

Butchers Shops. “The butcher shops in the city, numbering about 280, have been regularly visited during the present year. Up to the time of my appointment no record was kept ; since then 1534 visits have been made. No seizures have been effected. On one occasion an inspector, whilst visiting a shop, observed sheep being slaughtered in the back premises. The party was charged with the offence and a conviction obtained.

“This duty is carried out by four inspectors, viz., two attached to the Markets Committee and two to the Public Health Committee.

“The practice of hanging full-length sides of beef outside shops, whereby they were exposed both to dust and dirt on the footpath, as well as being liable to abuse by passing dogs, has been considerably abated, the traders having acquiesced with my suggestion, viz., that where sides of beef were exposed for sale outside the shops, the portion of the carcass nearest to the ground should be covered with a strip of white cloth, thereby protecting them from coming in contact with the dust and dirt, &c., and believing that by doing so it would enhance the appearance of their premises from a business point of view.

“The district inspectors visit the various railway stations daily. They seized, as unfit for human consumption : 2 carcasses of pork, 45 stomachs, 2 udders, 3 cwt. of beef and 1 case of onions. Inquiries were made regarding the circumstances under which these consignments were sent to the city. No legal proceedings were instituted.”

Cold Storage and Hide Marts. “This business is carried on by the Belfast Pure Ice and Cold Storage Co., their premises being situated at 72 Great Victoria Street. In warm and ‘muggy’ weather a great many of the butchers of the city take advantage of this concern and send beef, mutton, and pork to the refrigerating chambers ; there is also a considerable number of fowl and game stored here from time to time. These premises are visited periodically, the following seizures having been effected during the last twelve months : 132 plucked fowl, 2 heads (beef), 3 turkeys, 35 rabbits, 1 piece of beef and a quantity of mutton.

“There are four hide marts in the city, all of which are situated inside the public abattoir. The owners of these premises purchase the hides and fat of all the animals slaughtered in the abattoir, which, together

with hides coming from rural districts, are salted and subsequently shipped to different parts of England and Scotland.

“A considerable number of country consignments of cows’ udders, livers, &c., also carcasses of calves, arrive at these marts daily. The inspectors engaged in the abattoir visit these premises several times daily, and during the period under observation the following seizures were made :

“ EXAMINED						
“ Livers (beef)	.	.	.	.	.	2496
Udders	.	.	.	.	.	2568
Stomachs	.	.	.	.	.	5508
Heads	.	.	.	.	.	192
Tongues	.	.	.	.	.	72
Hearts	.	.	.	.	.	48
Livers (sheep)	.	.	.	.	.	260
						<hr/> 11,144

“The following were seized as being unfit for human food :

“ LIVERS						
“ Tuberculosis	.	.	.	.	.	159
Cirrhosis	.	.	.	.	.	318
Distomatosis (liver fluke)	.	.	.	.	.	53
Abscesses	.	.	.	.	.	106
						<hr/> 636

“ UDDERS						
“ Mastitis	.	.	.	.	.	228
Tuberculosis	.	.	.	.	.	3
Decomposed	.	.	.	.	.	69
						<hr/> 300

“ STOMACHS						
Tuberculosis	.	.	.	.	.	52
Decomposed	.	.	.	.	.	104
						<hr/> 156

“ HEADS						
“ Tuberculosis	.	.	.	.	.	9
						<hr/> 9

“ TONGUES						
“ Tuberculosis	.	.	.	.	.	7
Actinomycosis	.	.	.	.	.	1
						<hr/> 8

“Vehicles suspected to contain carcasses or portions of meat are overhauled from time to time, but up to the present no record has been

kept by the inspectors. On one occasion only was a seizure effected, but on inquiry a satisfactory explanation was given, therefore no prosecution was instituted."

Fish, Fruit, and Gt. George's Market. "These markets also receive the attention of the inspectors, the following seizures having been effected during the twelve months: Fish Market, 1 skinned rabbit; Vegetable Market, 4 cwt. of plums and 6 stone of tomatoes; Gt. George's Market, 12 cwt. 0 qr. 12 lb. of frozen beef and 138 sheep's kidneys.

"The chief use of beef and sheep blood is for the extraction of albumen. This business is carried on by a firm of manure manufacturers and blood merchants within the abattoir premises. The blood is purchased from the butcher, and after separating the serum from the clot, the former is manufactured into a kind of gelatine (used for fixing dyes) while the latter is used for fertilising purposes.

"All diseased meat is removed from the abattoir to the knacker's yard in covered carts. An inspector accompanies same and personally supervises its destruction. It is first drenched with a 50 per cent. solution of sulphuric acid, after which it is transformed into various by-products.

" APPENDIX

"TABLE I. RETURN OF ANIMALS SLAUGHTERED IN ABATTOIR FROM JANUARY 1907 TO OCTOBER 1907

"Cattle	28,246
Calves	562
Sheep	28,620
Goats	531
Deer	1
	<hr/> 57,960

"TABLE II. RETURN OF CARCASSES DESTROYED AS UNFIT FOR HUMAN FOOD FROM JANUARY 1907 TO OCTOBER 1907

	Cattle.						Sheep.	Goats.	Total.
	Oxen.	Bulls.	Cows.	Heifers.	Calves.	Total.			
Tuberculosis	12	1	119	3	—	135	—	—	} 443
" partial	7	2	230	10	—	249	—	—	
Black quarter	—	1	—	—	—	1	—	—	1
Dropsical	—	—	16	2	—	18	10	2	20
Decomposition	2	2	12	—	47	63	5	—	57
Inflammation	—	4	26	4	—	34	—	—	35
Pyæmia	—	—	3	—	—	3	—	—	7
Emaciation	—	—	—	1	—	1	—	—	1

“TABLE III. RETURN OF DISEASED ORGANS DESTROYED AS UNFIT FOR HUMAN FOOD FROM APRIL 1907 TO APRIL 1908

	Cattle.						Sheep.	Total.
	Oxen.	Bulls.	Cows.	Heifers.	Calves.	Total.		
Lungs :								
Tuberculosis substance	18	5	58	22	—	103	—	160
„ lymph. glands	42	13	20	12	—	87	—	
„ combined	30	17	178	30	—	255	—	
Hearts :								
Pericarditis . . .	8	2	7	5	—	22	—	28
„ tubercular	2	—	4	—	—	6	—	
Bowels :								
Tuberculosis . . .	20	15	153	9	—	197	—	197
Stomachs :								
Tuberculosis . . .	24	17	165	23	—	229	—	250
Abscesses	2	3	12	3	—	20	—	
Gastritis	9	12	31	10	20	82	—	
Decomposition . .	3	—	—	—	51	54	—	
Liver :								
Tuberculosis . . .	40	20	278	17	1	356	—	1744
Abscesses	32	12	76	11	—	131	—	
Cirrhosis	40	15	145	19	—	219	120	
Distomatosis (liver fluke)	10	8	30	9	—	57	740	
Spleen :								
Tuberculosis capsule .	1	—	1	—	—	2	—	2
Kidneys :								
Tuberculosis . . .	—	—	—	—	—	—	—	14
Abscesses	1	2	7	2	—	12	—	
Nephritis	—	—	2	—	—	2	—	
Udder :								
Tuberculosis . . .	—	—	5	—	—	5	—	194
Mastitis acute . . .	—	—	197	9	—	206	8	
„ chronic	—	—	95	5	—	100	12	
Head :								
Tuberculosis . . .	—	5	6	2	—	13	—	14
Actinomycosis . . .	—	1	—	—	—	1	—	
Abscesses	—	—	—	—	—	—	—	
Tongue :								
Actinomycosis . . .	—	1	—	—	—	1	—	1

“N.B.—This Return does not include the viscera of carcasses totally destroyed.

‘TABLE IV. RETURN OF MEAT DESTROYED AS UNFIT FOR HUMAN FOOD IN MEAT INSPECTION DEPARTMENT FROM APRIL 1907 TO APRIL 1908

“ Beef	.	.	.	.	22 sides, 4 quarters, 5 cuts.
Veal	.	.	.	.	5 carcasses.
Mutton	.	.	.	.	4 „ 5 cuts.
Pork	.	.	.	.	3 „
Rabbits	.	.	.	.	1 rabbit.

“ SUNDRIES

“ 7 cows’ hearts.	2 mesenteries.
24 lungs (beef).	3 diaphragms.
18 „ (mutton).	4 stomachs.
26 livers (beef).	6 udders.”
80 „ (sheep).	

CORK

Dr. Donovan, M.O.H., gives the following particulars of the slaughterhouses and meat inspection in this city for the year 1908 in his annual report. It will be noticed in the first paragraph which we quote that he draws attention to the difficulty of securing adequate inspection under the conditions which there exist, and which are only typical of similar conditions in many other places. The other comments which Dr. Donovan makes on arrangements such as obtain here are such as will be agreed with by all responsible officials who find themselves in the position of having to carry out meat inspection in the same circumstances.

Slaughterhouses. “The slaughterhouses in the city are subjected to daily inspection by one of the sanitary sub-officers, who devotes his attention to this duty, as well as doing meat inspection. There are twenty-five registered slaughterhouses within the borough; most of them are situated in congested districts and in narrow lanes. The slaughterhouse bylaws are insisted on and carried out as to daily removal of offal, manure, &c. Some difficulty, however, is experienced in keeping the necessary supervision over the slaughtering, which is carried on at all hours of the day, sometimes at night, and even on Sundays. A number of slaughterhouses (eighteen) have lately been erected outside the borough boundary, in different directions, where considerably more animals are slaughtered than within the borough itself. This, of course, adds to the difficulty of having the meat-supply satisfactorily supervised; and judging by the number of tuberculous carcasses which are met with in the city—over 5½ tons of it having been seized and destroyed during the year 1906, 2 tons 18 cwt. during 1907, and 3 tons 1 cwt. during 1908—there can be little doubt that a quantity of this stuff finds its way into the city from some of those establishments outside.

“In the year 1902 I submitted a report on the necessity of providing

a public abattoir in the city, and although up to the present there is no law concerning the erection of public slaughterhouses, and compulsory use of such cannot be insisted on, yet in Scotland town councils have the right to erect public slaughterhouses, with compulsory supervision, and to forbid the use of private establishments.

“ If a public slaughterhouse existed in Cork, the fresh meat which had been killed in it could be sold separate from the meat which had not, so that both descriptions of meat would be known in the corporation markets, the first-class meat, or that from the public abattoir, being branded. In the public slaughterhouse, also, meat injurious to health could be prevented from being sold ; all unfit for human food would be destroyed ; meat not perfectly healthy, yet not dangerous to health, might be sold according to the ‘ declaration of quality.’ Slaughtering would be carried out regularly with the greatest cleanliness and with the best appliances. A careful inspection of the live animal could also be made, and the quality of the meat would improve when competition began between the butchers in the purchase of better goods, and inferior meat would be sold as such. The markets are inspected daily, meat shops about every third day, and frozen meat on arrival before its admission to cold storage.

“ ANIMALS KILLED IN SLAUGHTERHOUSES

“ RETURN OF ANIMALS SLAUGHTERED IN THE CITY SLAUGHTERHOUSES AND IN THE SLAUGHTERHOUSES SITUATE IN THE CORK RURAL DISTRICT DURING THE FOUR YEARS ENDED DECEMBER 31, 1908

Situation of slaughterhouse.	Cattle.	Sheep.	Pigs.	Calves.	Goats.
1905.					
Cork county borough	4802	14,492	152,373	—	—
Cork rural district .	4639	12,245	—	—	—
1906.					
Cork county borough	2934	8,135	154,052	673	144
Cork rural district .	2643	10,950	—	—	—
1907.					
Cork county borough	3542	9,062	174,692	1375	198
Cork rural district .	3330	10,266	—	—	—
1908.					
Cork county borough	2698	10,733	177,431	1258	170
Cork rural district .	4172	13,442	—	—	—

"IMPORTATION OF FROZEN MEAT

"Quantity imported, 1908

"Beef (quarters)	.	.	.	.	.	8,901
Mutton (carcases)	.	.	.	.	.	13,529
Lamb	„	.	.	.	.	200
Tripe (cases)	.	.	.	.	.	1,040
Tongues, kidneys, &c. (cases)	.	.	.	.	.	268

"Number of prosecutions for failing in the decent and seemly conveyance of meat through the public thoroughfares within the city	.	.	.	.	3
Fines imposed in respect of same	.	.	.	.	5s.

"UN SOUND FOOD : SHOWING THE AMOUNT OF UNSOUND FOOD SEIZED AND DESTROYED, AS UNFIT FOR HUMAN FOOD

	1905. lb.	1906. lb.	1907. lb.	1908. lb.
"Beef . . .	7,178	12,577	7,012½	6,729
Pork . . .	4,221	578	2,819½	1,560
Veal . . .	45	37½	59	—
Mutton . . .	—	80½	403½	55½
Fish . . .	1,237	2,191	3,635½	5,003½
Fruit . . .	64½	164	77	304
Rabbits . . .	10	—	—	—
Fowl . . .	10	—	95	8
Onions . . .	—	—	116	47
Totals . . .	12,765½	15,628	14,218	13,707

"Number of prosecutions for having exposed for sale diseased or unsound meat intended for the food of man	.	.	.	.	.	35
Amount of fines imposed in respect of same	.	.	.	.	.	£30 6s."

DOUGLAS, ISLE OF MAN

We are indebted to Dr. Marshall, M.O.H. for Douglas, for the following information relating to meat inspection in his district, and also for the paragraphs quoted from the annual reports of 1907 and 1908.

There are no slaughterhouses in the borough. All animals have to be slaughtered in the corporation abattoir. There is a resident caretaker at the abattoir who is a good practical man, and anything that is abnormal in either beast, carcase, offal, or internal organs he at once reports to the veterinary inspector. If the latter thinks the material should be condemned, the M.O.H. is called in to inspect it and consults the veterinary surgeon. The butchers invariably give up the meat condemned, which is then covered with carbolic acid and sent to a manure factory. Nearly

all the cattle are bought here with a warranty, so it is the farmer and not the butcher who suffers the loss if an animal be seized. Owing to this, none but the best class of cattle are sent to the Douglas abattoir, the farmers not endeavouring to sell suspicious animals or "wasters" to the Douglas butchers, but disposing of them elsewhere. In spite of this it is found that rather more than 9 per cent. of the cattle slaughtered are affected with tuberculosis.

In the butchers' market the veterinary inspector or the M.O.H. inspects the beef every Saturday morning, and here are some carcasses which come from the country and are killed outside the borough, and occasionally are found to be unfit for food. The fish, poultry, and fruit shops are also under inspection.

From the above information supplied by Dr. Marshall, it is quite obvious that the inferior cattle and suspicious animals must find a market elsewhere than that of the Douglas meat-purveyors, and we draw attention to the point because this is only typical of an immense number of other places in Great Britain, many of which have been mentioned in these pages. It means that so long as meat inspection in Great Britain is of the haphazard character that it now is, certain districts will be supplied with all the inferior meat because in other districts inspection is more strict.

The moral is obvious.

The following is the Douglas M.O.H. Report for 1907:

" ABATTOIR

" During the year the number of cattle slaughtered was as follows :

" Sheep	.	.	.	.	.	.	.	11,148
Cattle	.	.	.	.	.	.	.	1,967
Pigs	.	.	.	.	.	.	.	849
Calves	.	.	.	.	.	.	.	128
Goats	.	.	.	.	.	.	.	10

" CARCASSES, &C., CONDEMNED

" 18 carcasses of beef.
 4 quarters of beef.
 2 carcasses of calves.
 4 „ mutton.
 Internal organs of ten carcasses of beef."

The following is the Douglas M.O.H. Report for 1908 :

" ABATTOIR

" During the year the number of cattle slaughtered was as follows :

" Sheep	.	.	.	.	.	.	.	12,684
Cattle	.	.	.	.	.	.	.	1,132
Pigs	.	.	.	.	.	.	.	830
Calves	.	.	.	.	.	.	.	135
Goats	.	.	.	.	.	.	.	4

"CARCASSES, &C., CONDEMNED

" 23 carcasses of beef.

1 fore-quarter of beef.

1 carcase of veal.

2 carcasses of pork.

10 " mutton.

1 hind-quarter of mutton.

Also the internal organs of 21 carcasses of beef.

" " " 1 carcase of pork.

" " " 3 carcasses of mutton.

"Twelve ducks sent from the cold storage at Liverpool were condemned. Fifteen plaice fish exposed for sale and unfit for food were destroyed, the vendor being fined ; and four baskets of decayed plums were also destroyed."



SHEEP GOING TO SLAUGHTERHOUSE, NGAHARANGA, NEW ZEALAND

CHAPTER VII

THE MEAT INDUSTRY AND ITS INSPECTION IN THE AUSTRALASIAN COLONIES *

NEW ZEALAND

GREAT BRITAIN imports from New Zealand annually no fewer than four million carcasses of mutton and lamb in the frozen condition, in addition to some ten thousand tons of frozen beef and a thousand of tinned and preserved meats. This meat has been for some time subjected to a system of compulsory inspection which is claimed to be as rigid as, if not more rigid than, that in any meat-producing country in the world. This inspection is carried out at an annual cost to New Zealand of £12,000, exclusive of the amount paid as compensation for condemned animals. Meat exported from New Zealand is guaranteed by a staff of qualified government inspectors to be healthy and fit for human food. These inspectors are under the control of Mr. C. G. Reakes, M.R.C.V.S., chief government veterinarian, and twenty-four of them are veterinary surgeons who qualified in Great Britain. Under these veterinary inspectors are twenty-five assistants specially trained for the work. The inspectors have by Act of Parliament full control over the sanitary and general conditions of all establishments where meat is prepared prior to shipment to Great Britain or elsewhere, and are responsible to the government for the proper management of these places. Each carcass, along with its internal organs, is examined for disease immediately after slaughter. Only the absolutely pure and healthy carcasses are permitted to leave the establishment for consumption.

Carcasses found to be diseased or suspected of being unhealthy or unfit for human food are immediately destroyed, and owners of such condemned carcasses are adequately compensated by the Government, the compensation being sufficiently liberal to remove any temptation to evade the laws.

Advantages and Drawbacks. The following quotations from the sanitary provisions and the list of offences indicates the care taken in these matters :

“In competing in the great world-market, New Zealand farmers set out with several advantages but with two great drawbacks. Of all those who grow food for England they are furthest away from Smithfield. Then the paucity of their numbers and their dislike to great capitalist

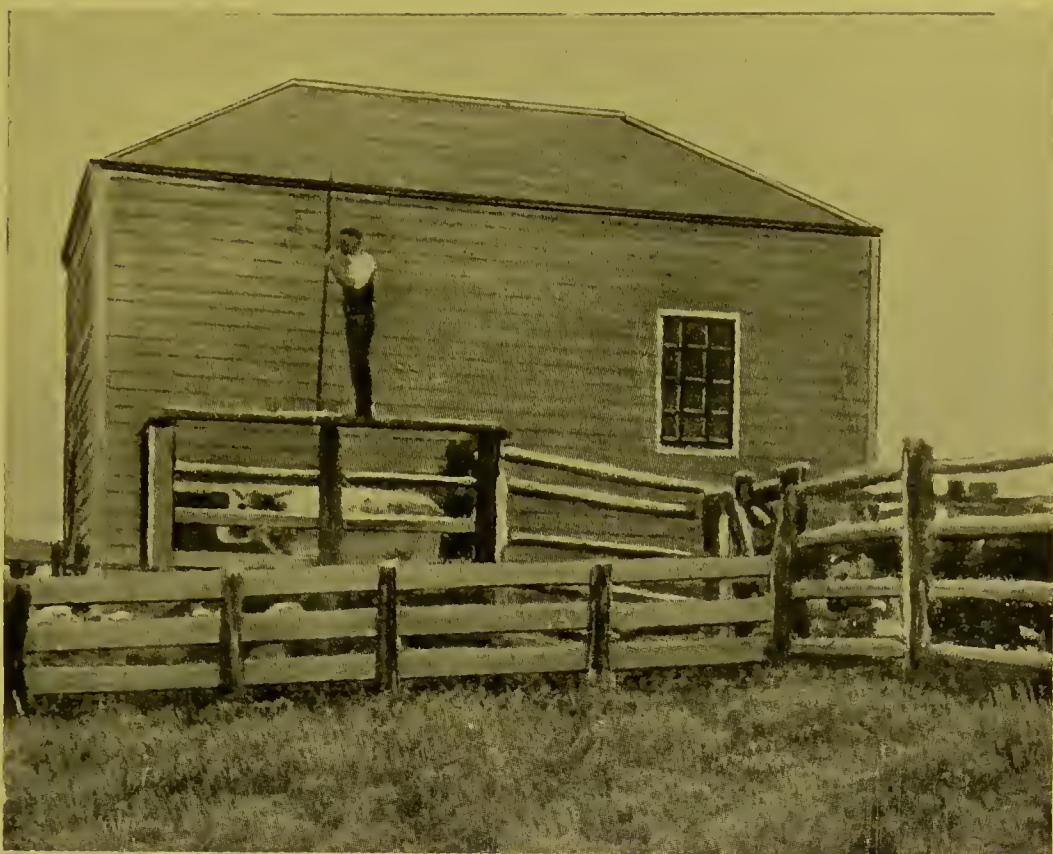
* From information kindly supplied by the Agents-General of the respective divisions of the Commonwealth of Australia and the Dominion of New Zealand.

combinations prevent them from forming powerful trusts and rings to manipulate markets, or control carriers and middlemen. This being their position, they are driven to rely much upon two helping factors : the first is co-operation amongst themselves ; the second the aid of their Government, given mainly in the form of technical instruction, close inspection, strict sanitary regulations and favourable railway and harbour arrangements. For the New Zealanders own their railways, and in no case allow any private interests to have a say in the management of ports or docks."

The sheep of New Zealand are estimated to number over twenty-two millions and the cattle not much less than two millions, and the surplus of these flocks and herds, after supplying local wants, is exported to Great Britain, most of it to the Port of London. Hence the value of the whole of the meat exported annually to England amounts to nearly four millions. The following paragraphs from a Government publication indicate how cleanliness and purity are assured in the meat industry :

Cleanliness and Purity. "To attain this ideal, the New Zealanders start with these great allies—a first-rate climate and an educated population. The climate is bright and warm enough to allow stock to stay in the fields all the year round, thus greatly lessening the dangers of contagion. The population, again, is comfortable and well enough taught to dislike both dirt and disease acutely, and to comprehend the advantages of surrendering a certain amount of personal liberty in order to secure a level of excellence in their meat and other food. From the first, the larger slaughtering and freezing works (of which there are now twenty-seven), through which all the exported meat of the colony passes, have been conducted with a high regard for decency and health ; but even this did not satisfy the public, and eight years ago the Government induced Parliament to put on the Statute-book a Slaughtering and Inspection Act which is probably one of the most drastic in the world. Under this, the slaughtering and preparing of meat, whether for local consumption or for export, is placed in all its details under the closest public inspection. Not only is this so, but the work of the inspectors of the Department of Agriculture begins long anterior to the slaughtering of the live-stock. The flocks and herds of the country, while still on the farms, are periodically visited and inspected. All the animals found diseased are condemned forthwith, and compensation to the extent of half their value is thereupon paid to the owners. The payment of this compensation has been found a great help in preventing the poorer or less enlightened owners from concealing diseased animals.

"The result is that disease is so rare that it is no uncommon thing for our veterinary surgeons to test whole herds of cattle without finding one single 'reacting' animal. As far back as 1901, Mr. Gilruth, an expert from Great Britain, reported that the New Zealand system of inspection, as carried out, was much in advance of that in the bulk of the cities in the United Kingdom, while the proportion of stock found diseased in the colony was much less than in this country. Thanks to



APPROVED TYPE OF PRIVATE RURAL SLAUGHTERHOUSE, NEW ZEALAND
Showing pithing-pen outside.



APPROVED TYPE OF PRIVATE RURAL SLAUGHTERHOUSE, NEW ZEALAND
Showing hanging-room and delivery door.

this inspection and the climate there is very little serious disease. The colony is entirely free from such disorders as pleuro-pneumonia and foot-and-mouth disease. Virtually the only disease found in cattle is tuberculosis of a minor character, and one or two lesser ailments. Tuberculosis is being stamped out in the manner already indicated."

Rigid Inspection. "Meat killed for consumption in the larger New Zealand towns has to be slaughtered in public abattoirs, meat for export in the licensed slaughter-yards of the frozen meat companies. To each of these slaughter-yards a departmental inspector gives his attention. This officer is a qualified person, holding the certificate of the English Royal College of Veterinary Surgeons. He is usually an Englishman by birth and training, who has been carefully selected in this country as a man both of experience and good character. During the past ten years some twenty-four of these veterinary surgeons have been selected, and despatched to New Zealand to give their services to the live-stock branch of the Department of Agriculture. They inspect all animals at the slaughter-yards before killing, and then, after the slaughtering, examine all carcasses. The condemned animals are killed and the carcasses at once removed and destroyed; some are used for manure, others are burnt or buried outright.

"The Government officials have full right of access to the books and papers of each company. These books have by law to be kept in such a way as to give complete lists of all animals slaughtered, and a heavy penalty may be exacted if there be any attempt at concealment.

"English readers, however, will naturally ask: 'What guarantee have we that all this inspection is faithfully carried out?'"

Purity in Public Service. "The answer is that in New Zealand the freezing companies do not form an influential ring, nor are their operations carried on in one or two centres on an enormous scale. Their slaughter-yards are scattered about the colony; their corporations are trade rivals, not always on friendly terms. If Company A were known to be evading the rules and regulations, Company B would soon get wind of it and complain loudly. Even if inspectors were not always trustworthy men, the Government could—as it does—shift them about from place to place, and so make malfeasance extremely difficult and dangerous. Furthermore, in the colony you may count upon honest public servants, an educated public opinion, and the very vigilant criticism of the newspapers. New Zealanders are very much alive to the need of purity in their public service. The small size of their towns and communities makes for publicity. Everything that Smith and Brown does is, sooner or later, known to Jones and Robinson."

Further Safeguards. "It would be impossible for the slaughtering and inspection laws to be evaded without the newspapers knowing it. The workmen themselves employed in the meat factories are much too strong and much too independent to submit to such abuses as were talked about in the case of factories elsewhere. They would rebel



GENERAL VIEW OF THE CHRISTCHURCH MEAT COMPANY'S WORKS AT PICTON, MARLBOROUGH, NEW ZEALAND, SHOWING PICTON TOWN AND HARBOUR
Head of Queen Charlotte Sound.

instantly if the conditions of life and work in our freezing factories were not of the most decent and healthful description.

The inspection, again, does not end with the factories. The meat is watched at the port of shipment, where the State inspectors have power to reject any carcasses not fit for export. Finally, a produce commissioner and a veterinary officer are stationed in London, whose duty it is to examine and report on every cargo which arrives from New Zealand. It is their duty also to keep in touch with all branches of the Colonial meat and dairy trade in England and Scotland, and to be especially vigilant in inquiring into all complaints by dealers and consumers. Any case of inferiority in cargoes is unflinchingly pointed out in the reports which these officers send to New Zealand. It is only fair to say that these reports are, as a rule, received with excellent temper in the colony, where the exertions of the officers in London are valued as they should be.

"The meat companies in New Zealand are enlightened enough to appreciate the advantage of State inspection, and, far from attempting to avoid it, have co-operated frankly with the officers of the Government."

Sanitary Provisions. "22. No calf weighing less than sixty pounds dressed weight (including the skin) shall be killed and dressed for human consumption.

"23. In every slaughtering-place the killing-, dressing-, and hanging-places shall be floored with concrete or other material approved by the inspector, and thoroughly ventilated.

"24. If the walls of the killing- or dressing-place are of wood, they shall be lined on the inside to a height of not less than six feet from the floor with galvanised iron, and any wooden partitions or posts in those places shall in like manner be cased with galvanised iron.

"25. The floor and lower portions of the walls, partitions, and posts of the killing- and dressing-places shall be thoroughly washed down immediately after slaughtering for the day is finished, or oftener if directed by the inspector.

"26. (1) Every part of the interior of the killing-, dressing-, and hanging-places (except such part as is lined or cased with galvanised iron) shall be thoroughly lime-washed at intervals of not less than three months, or oftener if directed by the inspector. (2) Where any part is constructed of such materials as would, in the opinion of the inspector, render lime-washing unnecessary, he may, by writing under his hand, waive the fulfilment of this clause as to such part.

"27. All knives, saws, cleavers, hooks, hanging-rails and other instruments, and all trolleys or other conveyances used in or about the slaughtering-place, shall be kept thoroughly clean.

"28. The race leading to the killing-place shall be paved to the satisfaction of the inspector.

"29. The yards and all other premises attached to a slaughtering-place shall at all times be kept clean and supplied with a sufficient supply of pure water for the watering of the stock yarded therein.

"30. No hide, skins, fat, or other portion of any carcase likely to



INVERCARGILL ABATTOIR, NEW ZEALAND
Cattle race to pithing-pen.

become a nuisance shall be stored in any killing-, dressing- or hanging-place.

“31. Every conveyance used for removing meats from any slaughtering-place shall be kept clean, and provided with a clean cover both under and over the meat conveyed therein.”

Offences. “33. Every manager or licensee in respect of a slaughtering-place is liable to a penalty not exceeding fifty pounds who—

“(1) Removes or allows or causes to be removed any carcase or portion of a carcase from the slaughtering-place before the brand, label, or tag required to be stamped or affixed thereto is so stamped or affixed ; or

“(2) Defaces, removes, or tampers with any brand, label, or tag affixed to any carcase or portion of a carcase pursuant to these regulations ; or

“(3) Places upon any carcase or portion of a carcase any brand, label, or tag, except in accordance with these regulations ; or

“(4) Commits any breach of any of these regulations.”

The following paragraphs, which are quoted from the annual report from the Department of Agriculture in New Zealand for the year 1908, written by the then chief veterinarian, Mr. J. A. Gilruth, give some very interesting information upon the various aspects as well as figures for that year. Mr. Gilruth's further remarks on tuberculosis of cattle and swine in the dominion will be read with very great interest by meat inspectors in this country. One reads with satisfaction that not a single

case of anthrax was reported, and that swine fever has not been observed for a number of years.

Abattoirs. “During the year one new abattoir, that of Greymouth, has been completed, and therein the whole meat-supply (with the exception, of course, of pigs) of that borough is now slaughtered under inspection. The abattoir for Auckland is rapidly approaching completion, and, besides Auckland City proper, it will supply the wants of the adjoining boroughs. Wellington, which has always proved tardy in respect to this necessary municipal adjunct, has formally authorised its engineer to prepare plans—which are practically completed to our satisfaction—so that a change in the present unsatisfactory state of affairs regarding the meat-supply of that city as a whole may be confidently anticipated during the current official year.

“All the South Island towns which were compelled by the passing of the Act to establish abattoirs have now done so, the last to fall into line being the borough of Greymouth. In the North Island all the municipalities (with the exception of the two largest) which came within the scope of the Act in this direction have now established abattoirs. It will be seen, therefore, that the happy state of affairs which was proposed by the statute to eventuate within a year of its enactment, or within two years by special Ministerial permission, has been but slow in coming to pass.

“The publication of the last census returns brought under the sections of the Act compelling the establishment of municipal abattoirs, on account of the increase of population, the three boroughs of Whangarei, Hamilton, and Hokitika, and it is pleasing to be able to report that the councils of these boroughs have made some movement towards compliance with the Act.”

Inspection of Municipal Abattoirs. “Bi-annual visits at least are made by either myself or the assistant chief veterinarian to each of the municipal abattoirs, as well as to all other establishments where departmental inspection is in force ; besides which the supervising veterinarian for each province is required to exercise a careful and continual jurisdiction. In almost every instance we find the most scrupulous attention paid to cleanliness ; improvements, repairs, and alterations as we deem necessary are, as a rule, readily acquiesced in by the controlling authority ; and, in fact, every assistance is given to the officers of the division, it being rarely that there is the slightest friction. Of course, friction is very largely avoided through the rule, which is of almost invariable application, of having the Government inspector act as manager for the local authority. Dual control is thus avoided, and so the department has an easier task in exercising efficient supervision.

“With the exception of the abattoirs at Thames and at Paeroa, all the buildings have been erected during the past decade, the majority during the latter half of that period. The premises acting as abattoirs for these two boroughs, however, are of older construction, built chiefly of wood, and not quite satisfactory. In the case of Paeroa the building



CARCINOMA (INTESTINE OF COW)
(By permission of the New Zealand Government.)

belongs to the local authority, and can still be maintained for a few years. The Thames abattoir belongs to a private firm, to which the power of establishment was delegated on the Act coming into force. The premises have now entirely outlived their usefulness, and this, combined with the growth and extension of the town, means that in the very near future a proper establishment will require to be erected by the local authority. This is well understood by that body, and I do not anticipate any difficulty in connection with the necessary alteration.

“The subject of municipal abattoirs naturally brings to mind the present anomaly in the state of the law regarding the treatment of pigs, which are favoured from the farmers’ point of view. The fact that all beef and mutton (which latter is notoriously free from disease) sold for local consumption must be killed under inspection, while pork (which is notoriously the reverse) may be sold without any inspection whatever, seems to be a distinct reflection on the good sense of the community, and is a state of affairs for which I have heard no really valid excuse or satisfactory reason adduced. It is to be sincerely hoped that in the interest of the general meat-consumer the clauses of the Act making this permissible may be amended during the coming session of Parliament.”

The Slaughtering and Inspection Act. “Only in so far as control of abattoirs and meat-export slaughterhouses, together with inspection of meat therein, does the operation of this Act come within my jurisdiction. Consequently the private registered slaughterhouses and their condition

—for which the veterinary division has possessed responsibility for nearly seven years—do not now come within the scope of this report.

“The *bona-fide*-farmer exemption clauses of the Act still affect our administration, however, particularly regarding the sale of pigs within an abattoir district. At present the law is construed to mean that all cattle, sheep, and calves, the flesh of which is sold for human consumption within an abattoir district, shall be slaughtered (save in certain circumstances, where, however, Government inspection is still provided for) at the abattoir, whereas pigs need not necessarily be so treated. In other words, the law permits a farmer to kill pigs (up to a limit of five per week) and sell them to butchers for the purpose of retail within such abattoir district.

“One would naturally assume that an abattoir is erected for the primary object of safeguarding the interest of the consumer of meat; but how can this be contended when, though it is illegal to sell lamb and veal, for example—which are notoriously free from disease—unless killed at the abattoir, yet it is legal for all the pork—the condition of which as regards health is notoriously the reverse (as already stated)—to be sold with absolutely no pretence at inspection!”

Farmers and a Grievance. “It is often urged that farmers cannot convey or send pigs alive to abattoirs unless with the utmost difficulty. Even were this so, the excuse seems to be barely satisfactory from the point of view of the meat-consumer. But is it so? Seeing that the largest bacon-factories—those of Wellington and Woodville—kill on occasions up to nearly four hundred pigs per day; that many of these pigs have been drawn from as far as Taranaki, whence they are shipped by rail; and that all farmers even there do not live adjacent to a railway-station, the contention cannot be upheld. The present position regarding pigs is distinctly anomalous. As I have so frequently urged, it should be altered, and the farmer who desires to vend dead meat should be placed upon an equality with the *bona-fide* butcher, instead of on a favoured pedestal as he is now.

“By a perusal of the section dealing with tuberculosis, the injustice of the present law, as it affects the consumer of pork, will at once become apparent.

“The year’s expenditure by this division in the administration of the Act was as follows:

“ Inspection of meat at export works	£6,973
„ „ abattoirs	4,327
Total	£11,300

“The inspection fees collected amounted to:

“ From meat-export works	£7,646
„ abattoirs	2,477
Total	£10,123



PANORAMIC VIEW OF THE ISLINGTON WORKS OF THE CHRISTCHURCH MEAT COMPANY AT CANTERBURY, NEW ZEALAND

leaving a net cost of about £1200, which is an increase of about £400 over last year. This is accounted for chiefly by the fact that previous to this year most of the inspectors at abattoirs were also inspectors of dairies within the boroughs at which they were located, and a proportion of the expenses was charged to dairy-inspection ; but as no part of the dairy inspection is now performed by this division, the whole expense has to be charged against the inspection at abattoirs.

“ The following are the

“ PARTICULARS OF ALL ANIMALS SLAUGHTERED UNDER DIRECT INSPECTION

	Killed.	Condemned.	Partially condemned.	Percentage condemned.	Percentage partially condemned.
Cattle . .	186,184	6,240	3,997	3.35	2.14
Calves . .	16,289	187	16	1.14	0.09
Sheep . .	2,381,264	10,075	1,247	0.42	0.05
Lambs . .	2,862,067	1,833	944	0.06	0.03
Swine . .	108,498	1,524	6,320	1.40	5.82



THE TIMBER YARD AT THE ISLINGTON WORKS

The stacks of timber here shown are made into packing-cases for exporting frozen produce.

“ There has been an increase in the number of cattle, calves, and swine slaughtered ; but calves, sheep, and lambs show a decrease as compared with the previous year.

“ The percentage of condemnations of cattle, calves and swine is considerably higher than last year, while the percentage of calves, sheep, and lambs condemned remains much the same.

“ The following Table shows the

“ PARTICULARS OF ANIMALS SLAUGHTERED UNDER DIRECT INSPECTION
FOR LOCAL CONSUMPTION ONLY

	Killed.	Con- demned.	Partially con- demned.	Percentage condemned.	Percentage partially condemned.
Cattle . . .	104,034	2299	1856	2.20	1.78
Calves . . .	13,829	172	—	1.24	—
Sheep . . .	562,669	2040	525	0.36	0.09
Lambs . . .	86,731	138	110	0.15	0.12
Swine . . .	99,862	1212	5912	1.21	5.92

“ These figures indicate a large increase in the numbers of all classes of stock slaughtered for home consumption.

“ Included in the number of swine entered here as for local consumption only, 53,987 were slaughtered at the bacon factories in the Dominion holding meat-export licences ; but, as I understand only a small proportion is exported, I have included them in this return.

“ The percentage of condemnations is in all classes higher than last year. In the case of sheep and lambs the increase is very slight, but the other stock show a more pronounced increase.

“ PARTICULARS OF ANIMALS SLAUGHTERED UNDER DIRECT INSPECTION
FOR EXPORT

	Killed.	Con- demned.	Partially con- demned.	Percentage condemned.	Percentage partially condemned.
Cattle . . .	82,150	3941	2141	4.79	2.60
Calves . . .	2,460	15	16	0.60	0.65
Sheep . . .	1,818,595	8035	722	0.44	0.03
Lambs . . .	2,775,336	1695	834	0.06	0.03
Swine . . .	8,636	312	408	3.61	4.72

“ With the exception of cattle and swine, these figures show a decrease on the previous year's figures. Cattle and swine show an increase of over 17,000 and 1500 respectively. The percentage of cattle and swine condemned is also higher than last year.”



GALL-BLADDER OF OX EVERTED TO SHOW POLYPOID GROWTHS

(By permission of the New Zealand Government.)

These specimens were forwarded by Mr. Wilkie and Mr. Snowball, they having been observed by Mr. Snowball in a cow slaughtered at the Dunedin abattoir. Mr. Snowball stated that the cow was in fair condition, and the liver apparently normal. Two specimens were sent, one being much smaller than the other. These presented the appearance of pedunculated papillary-looking growths. A large number were present in the gall-bladder (*see drawing*). Microscopical examination showed these growths to consist of numerous glands with narrow ducts lined with cubical epithelium branching out into multiple acini, with broad lumina also lined with cubical epithelium. The interglandular tissue consisted of loose fibrous tissue, the bulk of the tumours consisting of this material.

Tuberculosis. "The duties of the veterinary division have no connection with the elimination of this, the greatest of all diseases affecting the herds of the Dominion, beyond the application of the tuberculin test at the special request of owners. Our functions, however, in the inspection of meat killed for export at meat-export slaughterhouses, and for local consumption at abattoirs, enable us to provide a surer estimate of the extent of tuberculosis amongst the live-stock than can be ascertained from any other source.

"So far, no case of the disease has been ever encountered amongst the sheep slaughtered under inspection. Though from time to time suspicious lesions have been observed, these have on bacterioscopic examination here invariably proved not to be due to the presence of the tubercle bacillus.

"Following are the particulars of animals found tubercular when slaughtered for human consumption at the various slaughtering-places under inspection :

"GENERAL TABLE, SHOWING NUMBER OF ANIMALS FOUND AFFECTED WITH TUBERCULOSIS AT MEAT-EXPORT WORKS AND ABATTOIRS

	1907-8.			1906-7.		
	Number ex- amined.	Number found affected.	Per- centage affected.	Number ex- amined.	Number found affected.	Per- centage affected.
Cattle (including calves)	202,473	11,174	5.51	173,336	8475	4.88
Swine	108,498	7,853	7.53	100,731	5935	5.89

"TABLE SHOWING PARTICULARS OF EACH CLASS OF CATTLE EXAMINED

Bulls	5,474	598	10.92	3,271	363	8.04
Cows	56,061	5,296	9.44	37,112	3242	8.73
Bullocks and heifers .	124,649	5,237	4.20	117,620	4933	4.19
Calves	16,289	43	0.26	15,333	37	0.24

"In carefully analysing the foregoing Table one cannot but be struck with the percentage of pigs found tubercular. It exceeds that of all the cattle. Considering that the vast majority of pigs examined are killed for bacon-curing purposes, which means at least that they are not full-grown but are generally about a year old, the position is the more remarkable. To what, then, can the prevalence of tuberculosis in the pigs of the Dominion be attributed? Previous to the passing of 'The Slaughtering and Inspection Act, 1900,' it was the custom of many slaughtermen to feed pigs on the raw offal from the slaughterhouse, and as a certain proportion of such offal was tubercular this was doubtless a

fertile source of spread. But for years that practice has been rigorously suppressed, feeding on raw offal being wisely prohibited. That explanation does not now suffice for pigs generally. It is proved by the returns that certain districts are more badly affected with porcine tuberculosis than others. These districts are found to be those also badly affected with bovine tuberculosis. Yet this does not explain the prevalence of the former, for the two animals are rarely herded together. The connection is, however, apparent when we remember that the young pigs, particularly those being fattened for bacon, are largely fed upon skim-milk. This skim-milk is returned from the factory, and it is seldom that the supplier receives the skim-milk from his own whole-milk alone. One or two badly tubercular cows may contaminate the whole milk-supply of a herd, and the skim-milk of this may in turn contaminate the whole or a percentage of the young pigs of the owner or of another supplier to the same factory. That this is indisputable we have had ample proof, but the following circumstances are so pregnant with warning that they are worthy the attention of every one :

“In August last year a certain meat-export slaughterhouse received forty cows from a large farmer, well known for his care and attention as a breeder. They had been weeded out as no longer profitable for milking. Of these, twenty-one cows, or 52.5 per cent., were found to be suffering from tuberculosis in various stages. About the same time sixty-three pigs were received from the same farm, and of these, thirty-nine, or 61.90 per cent., were tubercular. It was very obvious that the general state of the dairy herd in question could not be satisfactory so far as this disease was concerned, and careful watch has been kept for further consignments of pigs from the farm in question.

“About four months later a bacon factory under inspection received 110 pigs from this farm. Of these, sixty-five, or nearly 60 per cent., were found tubercular, twenty-two being very badly affected. None of these pigs weighed 100 lb. ; they were, in fact, under nine months old.

“Again, more recently another large consignment of fifty was received, *and every single pig was more or less tubercular*. I do not think this can be paralleled anywhere.*

“At one time it was held that the milk of a tubercular cow was only dangerous when the udder was itself diseased. This, however, has been completely disproved. Recently it has been shown by Calmette, Guérin, and others that one of the most fertile sources of contamination is the *fæces* of diseased cows, this being the vehicle by which the bacillus is probably most frequently dispersed. Contamination of the milk-supply is thus readily understood.

“Calves are without doubt also frequently infected by means of

* In the United States of America, Dr. Salmon, in the last (22nd) Annual Report of the Bureau of Animal Industry, states, “The increasing proportion of tubercular hogs . . . is a matter for grave concern for the producer, for the packer and for the consumer. . . . About 3 per cent. of the hogs coming to some of our largest abattoirs are affected with tuberculosis.” If this is a matter of grave concern in a country where tuberculosis in cattle is much more common than in New Zealand, how much more grave is the position here in regard to pigs !

milk, skimmed and whole. That they are but infrequently found affected does not disprove this, for it has been shown that in them the bacillus may lie dormant, so to speak, within a lymphatic gland for months, and yet possess all its vitality, only waiting for some constitutional derangement, in all probability, to set up the characteristic pathological disturbance.



Multiple papilloma in the penis of a bull (rod inserted at urethral orifice) is here represented, the illustration being reproduced by permission of the New Zealand Government. While serving a cow, the bull was charged by another animal and thrown against a barbed-wire fence. Evidently the penis at the time came into contact with the wire, and was consequently injured. About a month later, at the extremity of the organ, a growth was observed, which gradually increased in size, at the same time extending upward, until it reached the dimensions observed at the time of slaughter. Microscopical examination showed the growth to be a pedunculated multiple papilloma.

“The remedy for all this is obvious, is one that I have urged repeatedly for years, and is one that can only be applied by legal enactment or regulation. It consists in the compulsory sterilisation of all skim-milk at the factory before it is returned to the supplier. Were this insisted upon, both the farmer and the general taxpayer would early feel the benefit.”

The Tuberculin Test. “Until quite recently, it was generally believed that cows not clinically tubercular, and, by many, that those not actually affected with tuberculosis in the udder-tissue itself, were entirely innocuous from the point of view of their milk-supply. For several years, however, the latter position has become absolutely untenable, and of late facts have been adduced by different investigators which demonstrate in the most conclusive manner that the *milk of any cow suffering from tuberculosis* may from time to time—though not necessarily constantly—contain a greater or less number of living and virulent bacilli.

“Mohler and Norgäard were amongst the first to show that apparently healthy cows proven tubercular only by the tuberculin test might transmit the tubercle bacillus by means of the otherwise normal milk, as demonstrated by a series of careful experiments on guinea-pigs both by inoculation and by feeding. Others, such as Ravenel, Moussu, Martel, Guerin, and Schroeder, have by more recent experiments supported the contention that milk from such cows may at any time be dangerous.

“Just recently, De Jong, of Leyden, has published the results of an experiment undertaken to show the condition of the milk of ten cows, to all appearance healthy, but reacting to the tuberculin test. The milk was secured with the utmost precaution to prevent accidental contamination, the udders, &c., as well as the hands of the milker, being thoroughly cleansed and disinfected, while the milk, after discarding the first jets from the udder, was collected directly into sterile vessels. A quantity of milk from each cow was injected into guinea-pigs. The result of the experiment proved that of the ten cows in question, to all appearances in a perfect state of health, three



HYDATID CYST IN APEX OF RIGHT VENTRICLE OF BULLOCK'S HEART
(By permission of the New Zealand Government.)

were secreting milk contaminated with virulent tubercle bacilli. *Post-mortem* examination of these cows showed one to be affected with tuberculosis in the lungs and the mediastinal and bronchial glands; one in the mediastinal and bronchial glands alone and one with only a single tubercular lesion in a mediastinal gland."

The Danger from Tuberculosis in Milk. "While it may be held that intraperitoneal and even subcutaneous inoculation of a quantity of milk is such a severe test that it bears no analogy to the ordinary drinking of milk, it must be remembered that it definitely proves the presence of the germ of consumption or tuberculosis within that milk. Were one such cow's milk mixed with that from a number of healthy cows, the probabilities are strongly against any danger to an animal or even a human being partaking of the mixture. But the position is different when we recollect that in all likelihood milk from the same source is consumed daily by the same person or animal; and, as it has been demonstrated that these bacilli of tuberculosis may remain for a considerable time dormant but still alive and possessed of virulence within a lymphatic gland of a healthy animal, provided their numbers are not excessive, the continual reinforcement by fresh battalions, or even units, can only result in ultimate capitulation of the body-tissue.

"This is well illustrated in the case of pig-infection from skim-milk, already recorded, and an instance which has come under our notice of calves at foot sucking healthy udders of tubercular cows is further proof of the danger of such cows; unfortunately, it is but rarely that

officers of this division are enabled to so completely and successfully follow such cases."

Interesting Results from Experiments. "In August last Mr. Palgrave, Government Veterinarian, reported that five calves sent to the meat-works under his charge, when slaughtered, proved to be affected with tuberculosis, two being markedly affected in the lungs, the bronchial and the mediastinal glands, and three to a less extent in the bronchial and mediastinal glands alone. Mr. Palgrave succeeded in tracing these calves, and received the following information from the owner: 'Four of these calves were reared on their mothers—cows bought from a neighbour; the other was from a cow I was milking, and was reared on a young heifer.' The cows and heifer in question were all tested with tuberculin soon afterwards by Mr. Burton, Government Veterinarian, when all reacted with the exception of the cow whose calf was reared on the heifer. One was killed by Mr. Burton, and found badly diseased, but with a healthy udder. The remainder that reacted were then fattened and slaughtered under the supervision of Mr. Palgrave some months later with the following result: One was affected in lungs, pleura, and bronchial and mediastinal glands; one in the lungs and bronchial and pharyngeal glands; one in the bronchial and mediastinal glands; and one in the pharyngeal glands alone. In none was there any evidence of tuberculosis of the mammary gland, even after the most careful examination. Unfortunately, there was no means of ascertaining the relationship between the individual calves and the individual cows, but it is evident that the calves had contracted the disease from these cows, and in all probability through the milk, although it will be observed *none of the udders were affected*. Of course, the question of general contagion is not altogether eliminated, seeing that all were depastured together; but if it were possible by any means to so contaminate the calf at foot, then it is equally possible to contaminate the milk during the process of milking by means of fæces, &c., as will be seen later. Notwithstanding this possibility, judging from the authorities already quoted proving the appearance of tubercle bacilli in milk from healthy udders of cows apparently normal (but for tuberculin reaction), it is far more probable that those calves were infected directly through the milk."

The Distribution of Tubercle Bacilli by Tubercular Cows. "The theory of the inhalation of dried sputum and dried tubercle bacilli in dust is through the weight of experimental evidence becoming more and more untenable. In any case, this theory was never applicable to bovines, for the simple reason that even when affected to a serious extent with pulmonary disease they do not expectorate in the ordinary acceptance of the term—at most the mucus, &c., reaches the pharynx, when it is promptly swallowed. Further, as is well known, tubercular lesions, in cattle particularly, have a great tendency to become encapsuled and not present any open lesion, even to a mucous surface. How, then, are the bacilli, which have no great powers of resistance to natural influences outside the body, disseminated from diseased to healthy animals? The

answer is, as recent experiments have shown, by means of the milk, and by the fæces (dung). As to the former channel I have already dealt. Regarding the latter, valuable work has been recently done, particularly by Schrøder and Cotton. As a result of many interesting observations they calculate that a tubercular cow in apparent health may pass along with the fæces daily the enormous number of nearly forty million virulent and microscopically demonstrable tubercle bacilli. It is further estimated that of cows clinically healthy but proved tubercular by tuberculin, 40 per cent. at least may be expelling the virulent bacilli along with their fæces.

“Now, as it is almost impossible in the ordinary operation of milking—as usually conducted, at all events—to prevent some contamination of the milk per medium of the fæces—small though the particles may be—it will be seen how tremendous is the risk in supplying human beings, especially infants, with milk from cows which have not been proved to be free from tuberculosis by the application of the tuberculin test.

“The subject of tuberculosis in cows is obviously of paramount importance in relation to the local milk-supply, and the data I have given regarding the infection of pigs in the Dominion alone is sufficient to induce serious thought.”

NEW GROWTHS SIMULATING TUBERCULOUS LESIONS DUE TO CYSTICERCI IN SHEEP

“Some time ago, specimens of nodules from the diaphragms of lambs were received from an inspector at a meat-export establishment, who desired my opinion as to the nature and cause. These nodules, which were preserved in spirit, showed to the naked eye a thick wall not encapsulated, but circumscribed at the periphery, fairly homogeneous in structure, and with a small degenerated centre. Sections examined under the microscope demonstrated the growths to be granulomatous in nature. There was rapid invasion of the muscular tissue of the diaphragm the muscle-fibres becoming separated and isolated by the new growth. Typical giant-cells were present, and the whole microscopical appearance was suggestive of tubercular infection. Numerous attempts were made to demonstrate tubercle bacilli, which are often, in typical true tubercular growths, few in number and difficult to detect, but without success. No organisms could be definitely demonstrated, and it was requested that pipettes of the degenerated contents of similar nodules be forwarded for bacteriological examination. Later on, smears and a small quantity of watery flocculent material from one of these nodules arrived. The smears showed one or two cocci and short bacilli, which were also present in the pipette contents. The coccus proved to be a variety of *Staphylococcus albus*, while the bacillus was apparently only accidental, for experiments proved its innocuity. The staphylococcus proved innocuous for guinea-pigs, but a lamb inoculated with $\frac{1}{2}$ c.c. broth culture developed slight passing lameness and a small hard nodule near the point of inoculation. When killed a fortnight after inoculation a small walnut-sized

abscess was found, with thick wall and semi-caseous yellow pus from which a pure culture of the staphylococcus was recovered. There were no other foci of disease through the body."

Nodules in Lambs. "While these experiments were being conducted a number of similar tumours, of sizes varying from a pea to a large marble, were received from Mr. Sabin, Government Veterinarian at Invercargill, who reported the presence of numerous cysticerci affecting the diaphragm in some lambs slaughtered at the works there. Most of the nodules from the peritoneal surface of the diaphragm (muscular portion) were typical small cysticercic nodules, but a considerable number, especially those in the body of the muscle, were similar to those already received, both to the naked eye and under the microscope. As Mr. Sabin had not sufficient time to devote to assisting in the elucidation of the cause of these nodules, Mr. Kerrigan undertook the work. He remained at Invercargill for a few days, and there received, in a fresh condition, nodules from the different works in the district. He examined 143 nodules from sheep, mostly lambs; 130 of these were from the diaphragm, and twelve from the somatic muscles. In all these nodules he demonstrated the presence of a small parasite, a cysticercus similar to—if not identical with—the *Cysticercus tenuicollis*. Many of the nodules showed a fairly large cyst, with but a small amount of new fibrous tissue surrounding; but at least fifteen were similar to those I had described as being particularly necessary to examine. These nodules, which varied in size from a pea to a bean, and even larger, were on section fairly homogeneous in appearance, firm in consistency, and the periphery not sharply circumscribed when examined carefully, but implicating the muscle. There was usually no degeneration, but situated generally exactly in the centre, or to one side, was always a small reddish area not unlike a punctiform hæmorrhage or a small cavity, from which with care could be enucleated a small cysticercus of about the size of a grain of linseed. In other cases the centre was more or less broken down. That these small parasites had not been detected in the nodules received by me was due to the alteration in appearance owing to the preservative in which they were forwarded. Specimens of these cysticerci, beautifully mounted, were received from Mr. Kerrigan, and his conclusions verified. Furthermore, sections of nodules from which the parasite had been removed showed the same granulomatous nature of the growth with the presence of giant-cells, as already noted and described."

Nature of the Cysticercus. "Anatomically the parasite more closely resembles the *Cysticercus tenuicollis*, which is the cyst stage of the *Tænia marginata* of the dog, than any other. Frequently the head is found evaginated, but otherwise it with its hooklets possesses the characteristics of that parasite. The neck, however, is not so long, even comparatively as the well-known long neck found in these 'bladder-worms' when lying free in the peritoneal cavity; but this is probably due to the situation and the pressure exercised by the surrounding new growth, which in the cases examined by Mr. Kerrigan had not been sufficient to kill cysticercus.

Sheep-measles. "This disease, affecting the muscles of sheep, has been observed on a few occasions, generally in the abdominal muscles and Mr. Kerrigan reports a badly affected case in which nearly all the muscles of the body were affected with small greyish nodules about the size of a split pea, each containing the *Cysticercus tenuicollis*, which is known to be the cause of the complaint."

General. "It is surprising that many more cases of these nodules in the diaphragm and of so-called 'measles' are not observed, considering the number of dogs in the Dominion affected with tapeworm, and the frequency with which *C. tenuicollis* is found in the peritoneal cavity. While these nodules and the cysticerci are not dangerous in any way to the human being, their presence is of considerable importance in view of our export trade, and particularly because of the histological character of the new growth which they induce. Nodules such as I have described, found in carcasses of frozen mutton in Great Britain, and examined microscopically, would be, it is almost certain, definitely considered tubercular in origin, on account of the presence of these characteristic giant-cells, although tubercle bacilli could not be demonstrated. It therefore behoves all engaged in meat-inspection to be extremely careful in regard to this point."

Beef-measles (*Cysticercus Bovis*). "Recently Mr. Kerrigan reported the occurrence of a case of this disease. The disease, which consists of the development of the *Cysticercus bovis*, the intermediary stage of the *Tænia saginata* or *medio-canellata*, a tapeworm of man, within the muscles of animals of the bovine species, has not hitherto been observed in New Zealand. The case in question was that of a bullock killed at the Invercargill abattoir, the disease affecting only the muscular tissue of the heart. Mr. Sabin sent the specimen to Mr. Kerrigan, who at the time was investigating the cause of diaphragmatic nodules in sheep, and he was able to demonstrate the nature of the cysts, which I have confirmed.

"Cobbold stated that these cysts when found in the heart were usually smaller than those found in the body-muscles, of which the masseter muscles are probably most frequently affected, but in this case they were of normal size.

"The following description of the parasite, from Neumann's 'Parasites, &c.,' in connection therewith is interesting :

"The *Cysticercus bovis*, Cobbold ; *Cyst. mcdiocancellatæ*, Devaine, presents itself in the form of a spherical or elliptical, sometimes irregular, vesicle, measuring 0.4 mm. to 3.4 or 6 mm. long, or even to a maximum of 10 mm. to 15 mm. (Masse Alix) ; and showing at one point a yellowish white spot about the size of a millet-seed, which is formed by the invaginated scolex. If, in order to examine the *Cyst. cellulosa*, it be squeezed out of the vesicle, there is seen a markedly tetragonal head, 0.7 mm. in diameter, provided with four large suckers, and a central depression that corresponds to the rostellum of the armed *Tænia*, and which is, according to Cobbold, retractile and protractile like theirs. The head is succeeded

by a transversely striped neck. The characters of this scolex are, in fact, those of the head of the *Tænia saginata*. Each cysticercus is enveloped in an adventitious cyst, like the cysticercus of the pig.’”

Contagious Mammitis. “This disease still continues, taking the Dominion as a whole, to spread so far as the information afforded to me would seem to indicate. It would be surprising did it not spread, in view of the absence of any enactment forbidding the sale or free disposal of affected cows.

“During the past three months, at a meat establishment where old cows are frequently sent for slaughter, the inspector has, at my direction, made a careful examination of udders for the detection of evidence of this disease. The result is that during the three months, out of 1433 cows killed and examined, 143 were so affected. The proportion (10 per cent.) is considerable, especially when it is recollected that in dry cows this catarrhal form of inflammation is difficult and often impossible to diagnose. Fortunately, these cases having been destroyed, a certain number of foci of infection has been removed. What of those bought by unsuspecting dairy-farmers ?

“It is a matter for regret that no provision has yet been made whereby we may be enabled to further investigate more satisfactory lines of treatment than at present determined.

“Recently I have prepared a Bulletin (No. 13, Division of Veterinary Science) describing the disease fully, and this is being distributed. Following is a reprint.”

Bovine Contagious Mammitis. “Since I first drew attention to the presence of this serious disease amongst certain dairy herds in the Dominion—through my annual report of five years ago—the fact that it has spread very extensively throughout the country is beyond doubt. This spread I attribute partly to carelessness on the part of the dairy-farmer ; partly—paradoxical as this may seem—to the dissemination of information rendering owners alive to its seriousness and the advisability of getting rid of affected cows ; greatly to the absence of any power for controlling it ; and, most of all, to the saleyard as a means of disposal of diseased animals.

“Up to five years ago its presence was not even suspected by me, for I had not been consulted by any one regarding a disease having symptoms approaching those of this complaint. Therefore I feel safe in concluding that any hold it may have had prior to this was but slight.

“In my annual report for 1904, having had inquiries made with a view of ascertaining the extent of the disease, I observed : ‘I am now in a position to state that to-day there exists a slow chronic form of a catarrhal inflammation of the ducts of the udder which if allowed to spread further may seriously affect the prosperity of the dairying industry.’ That at the present moment it is seriously affecting the prosperity of the dairying industry, any one who knows the conditions must admit.”

Nature of the Disease. “It is a catarrhal affection, and limited in

the vast majority of cases to the mucous membrane lining the ducts of the udder. The inflammation is not acute in the ordinary acceptation of the term, inasmuch as neither heat nor pain is present, and there is little or no swelling. The micro-organism causing the disease only attacks the mucous membrane in question, resulting in the shedding of the cells composing that membrane and the outpouring of an exudate rich in leucocytes or phagocytes, which are attracted to the region through the toxins evolved by the microbe. These leucocytes attack the microbes, but are usually powerless to cause their destruction. They themselves succumb in their battalions, and produce that characteristic feature of the disease, a purulent deposit in the secretion of the affected quarter noticed after withdrawal. The microbe in question is known as a streptococcus, a minute circular organism arranged in rows of four to ten. In other words, this organism belongs to the same family as (and is indistinguishable from so far as appearance, &c., goes) the causative agents of such diverse diseases as puerperal septicæmia and erysipelas in human beings, strangles in horses, and ordinary abscesses in all animals, including man."

General Symptoms. "There are what may be termed three forms of the disease—the acute, the subacute and the chronic—which, although not necessarily markedly distinctive from each other, may be described separately for the purpose of conveying a comprehension of the diseased condition."

Acute Form. "The more acute form is that in which the first symptoms of the trouble are a diminution of the milk-yield, a definite acidity of the milk, and a tendency for it to rapidly become coagulated. This is frequently accompanied by a sensible swelling of the teat-duct and floor of the milk-cistern, which may be felt extending up the centre of the teat to the base. In the very first stage the milk may contain none of the cocci which cause the disease, there being for the first day or two probably no exfoliation of the mucous membrane. There may be a slight swelling, hardness, and even œdema of the quarter affected, but this is by no means a common concomitant. The animal's health is seldom affected, unless other organisms gain entrance at the same time to the udder. Shortly after these early symptoms are exhibited the milk becomes viscous, thick, and yellowish, being more of the nature of pus—which, in point of fact, it is—than of milk. Gradually it assumes a dirty-brownish tint, is more curdly, and if the material be collected and allowed to stand, one-quarter to four-fifths settles as a dirty brownish yellow deposit surmounted by a thin pale, milky fluid. The deposit under the microscope is seen to consist of masses of pus-cells mixed with streptococci. Gradually the secretion of the quarter diminishes until only a few spoonfuls of the dirty-looking purulent material can be removed, the teat-duct being sensibly thicker, and if little attention be paid it becomes impervious and the whole quarter rendered useless. Occasionally a very acute state of inflammation is seen, though, fortunately, but rarely. The udder becomes large, there is heat and

tenderness present, and abscesses form, usually at the lower surface, and, bursting at times, a portion of the udder sloughs.

“Cases are not altogether rare where death from generalised septicæmia has followed this very acute form of the disease, in one instance nearly 10 per cent. of the affected animals having succumbed (*see* Annual Report, 1904).”

Subacute Form. “The subacute form is in reality more dangerous than the foregoing, as the changes occur so slowly and the secretion of milk is so slightly altered that it remains frequently unobserved until too late, generally resulting in a ‘blind quarter’ the following year. Practically the only alteration observed in the affected quarter is a more or less marked thickening of the walls of the teat-duct, the feeling being to the hand as if a piece of cord had been inserted into the canal. The disease is therefore purely local and confined to the teat-duct, and probably the floor of the ‘milk-cistern’ or lactiferous sinus. Beyond the first small quantity of secretion removed on milking, the milk is little altered so far as the casual observation goes. The quantity first removed, however, is generally yellowish, curdly, and, in fact, purulent. This, however, is sufficient to contaminate the hand and the whole of the milk, and the remainder, passing as it does over the diseased catarrhal surface, carries away a further number of the germs. Therefore, even if the first quantity be milked on the floor, as is often done by the milker, the bulk is always contaminated to a greater or less extent.”

Chronic Form. “Gradually this phase of the disease is followed by the chronic form, which is manifested by the development of one, and sometimes two, hard nodules within the teat-duct, generally towards the base of the teat or its upper third. This nodule is usually about the size of a pea, though it may assume the dimensions of a walnut. This condition is sometimes spoken of by dairymen as a ‘pea’ or ‘wart’ in the teat. Occasionally this nodule may develop a few weeks after the previously described condition has been noticed, though as a rule the following is the history as recorded by the owner: ‘The cow was turned out in the early winter apparently quite sound, and has calved with one or more blind teats, or showing the presence of a nodule in the teat.’ Before being turned out, the frequent milking, and consequent removal of the pus and many of the germs, prevented any great aggravation of the local lesion; but after milking ceased the formation of granulation tissue commenced, due to the continual growth of the streptococcus and the consequent chronic inflammation. Mr. Young describes the worst phase of this chronic condition as follows: ‘The very lowest part of the teat-duct is healthy, but above this, and filling up, as it were, the teat for about an inch, may be found a growth or swelling, feeling just as if one had plugged one part of the teat with a piece of cloth, and terminating abruptly both above and below. In a few instances I have found this obstruction existing only on one side of the teat.’

“This last phase is very serious, as it means the complete uselessness of the quarter, and, so far as the dairyman is concerned, appears worse



VIEW OF POSTERIOR SURFACE OF LIVER DERIVED FROM A FLUKY SHEEP
The surface is rough and irregular.
(By permission of the New Zealand Government.)

than the presence of the small pea-sized nodule, past which milk may be drawn and at worst a teat-syphon can be pushed. As, however, these nodules, no matter how small, contain a suppurating centre, they are probably a constant cause of the spread of the disease.

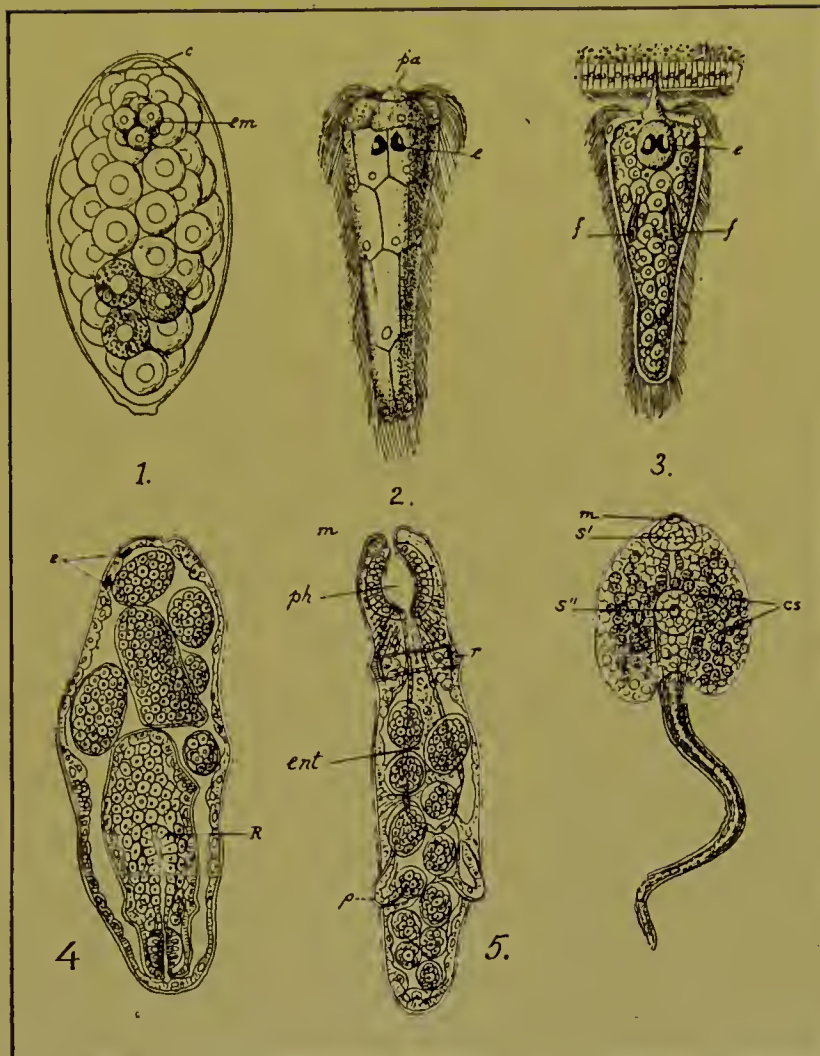
"It will be observed that in many cases the symptoms are so very slight that only a most careful examination will detect anything abnormal in the milk. Instances have not been rare in which owners, after having turned out with calf-at-foot every animal of which they had the slightest suspicion, have been dismayed shortly afterwards to discover one or more fresh cases. The reason has invariably been, when not traceable to inefficient disinfection of the milking-shed, that an animal with the mildest possible phase of the disease had been overlooked, and, though the disease was not progressing in her, on transference to a new soil the germ promptly increased in virulence.

"Cases may be so slightly affected that the milk does not appear to be curdled—even that first withdrawn from the teat—and, on settling, the deposit is so small as to be overlooked. In these rare cases I have frequently found the pus-cells more numerous in the cream than anywhere else. The reason of this is that, many of these cells having undergone fatty degeneration, they have little, if any, greater specific gravity than the milk, and they become entangled in the rising globules of butter-fat, and so are carried to the surface instead of forming a deposit at the bottom of the vessel.

"In all cases where slight infection is suspected, a sample of the cream as well as the first-drawn milk should be submitted for bacteriological examination."

Transmission of Infection from Cow to Cow in the Same Herd. "It is unnecessary to look further than the hands of the milkers or the cups of the milking-machine for the active agent in dissemination. While the hand of the human milker is a common vehicle for conveyance of the disease, the evidence accumulated from many sources places it entirely in the shade alongside the cup of the milking-machine. And when this is stated it is with no desire to cast unwarranted reflection upon that useful adjunct to the dairyman. *A priori*, the milking-machine should by its very construction enable a farmer to produce cleaner milk than by any other method, but *it must be kept scrupulously clean, and be sterilised after each milking*. If not, the effects will be disastrous. Now, a milking-machine will not, so far as our experience goes, *produce disease*, but it will certainly readily *transmit* a disease such as that under review from one udder to another if precautions be not taken. That the disease is readily spread from udder to udder we have repeatedly proved experimentally. The microbe only requires to be transplanted on to the milk-moist point of a teat, when it will multiply with great rapidity, and soon push its way into the teat-duct itself through the orifice and become firmly located on the mucous membrane.

"It is also dangerous to milk the contaminated udders on to the floor of the milking-shed, for there the germs will remain for a considerable



1. EGG OF FLUKE FILLED WITH LARGE VITELLINE CELLS
em, segmenting ovum. *o*, operculum or lid.
2. MIRACIDIUM OR FREE-SWIMMING EMBRYO SHOWING LARGE CILIATED CELLS
e, eyespot. *pa*, interior papilla.
3. MIRACIDIUM BORING ITS WAY INTO TISSUES OF A SNAIL
e, eyespot. *ff*, flame cells.
4. SPOROCYST CONTAINING ONE FULLY-DEVELOPED AND SEVERAL DEVELOPING REDIÆ
e, eyes undergoing degeneration. *R*, redia.
5. A REDIA CONTAINING SEVERAL DAUGHTER REDIÆ IN VARIOUS STAGES OF DEVELOPMENT
m, mouth. *ph*, pharynx. *ent*, enteron. *r*, muscular collar. *p*, posterior processes.
6. A CERCARIA
m, mouth. *s'*, anterior, *s''*, posterior, suckers. *cs*, cystogenous cells.

(By permission of the New Zealand Government.)

period a menace to the health of the other cows. The dirty practice of moistening the hand with the first few drops of milk is equally to be condemned."

Transmission of Infection from Farm to Farm. "From farm to farm the disease may be spread by skim-milk derived from an infected herd through the factory or creamery: we have had very strong circumstantial evidence adduced to that effect. Nevertheless it is but rarely necessary to search for the means of introduction. In 99 per cent. of cases it is through a new cow bought in a saleyard, without examination or any precautions whatever. Too often the saleyard suggests itself as an easy, effectual, and profitable means of disposal of a cow suffering from this disease. The fear of a neighbour's knowledge is generally nullified by consignment to a saleyard out of the immediate vicinity. Be it understood, I do not blame the seller—there is no law to prevent him so disposing of a cow with contagious mammitis—but I do blame the purchaser who light-heartedly buys such a 'pig in a poke,' when there is no necessity to do so, and it is accordingly difficult to feel deep sympathy for him in misfortune.

"Prevention. This can only be effected through a knowledge of the disease and its gravity. Those who have had no experience are too apt on seeing a case in a neighbour's herd to pooh-pooh the matter. But if they will only bear in mind the fact that instances have come under our observation where from 40 to 80 per cent. of the cows in certain herds have been rendered to all intents useless; that cows have died as a result of the disease; and that cases of human disease, particularly sore throats in children, have been traced to cows suffering from mammitis, the serious nature of the complaint may be brought home to them.

"Cows bought-in, either privately or publicly, should on no account be placed with a healthy herd till they are proved free from this and other diseases. Such a precaution is simple, and may save endless trouble.

"A cow suffering from the disease should be kept isolated, if possible, and always milked last in a special pail, the milk being boiled immediately after milking and given to the pigs, and the hands of the milker should be thoroughly washed with soap and hot water to which a reliable disinfectant has been added.

"Once the disease has appeared in a herd the owner should personally examine minutely every cow's udder before milking, and carefully note the character of the first small quantity of milk drawn, before the milkers commence the milking. *This precaution is especially necessary where a milking-machine is installed.* Any cow under the slightest suspicion should be held over to the last for milking, and on no account should the machine be used on her.

"Above all, it cannot be too strongly impressed upon the stock-owner that prevention is *the* treatment for him to adopt, and that no other really merits very serious attention so far as the present state of our knowledge warrants."

Treatment. "Inquiries are constantly being received from farmers and inspectors as to what is the best treatment for contagious mammitis, and the reply remains the same: 'Unless in the very early stages—that is, during the first two or three days of its onset—there is none satisfactory that can be recommended.' Only a knowledge of the pathology of the disease can explain why this is so. During the first few days the microbe is located practically solely on the surface of the mucous membrane, and has not penetrated far up into the finer tubes which ramify throughout the delicate substance of the udder. Gradually, however, it penetrates deeper, becomes englobed by cells, and pushes further and further into the narrowing tubules. In this way it becomes impossible for any fluid injected into the udder to reach the invader. It should be remembered that the tissues of the udder are extremely delicate, much more delicate than the microbes, so that a poison sufficiently powerful to immediately destroy the latter is more than likely to permanently injure the former. A great authority—Professor Sir A. E. Wright—has recently stated, 'It is now all but universally recognised that it is futile to attempt to check bacterial growth in the interior of the organism by antiseptics which have—as our present antiseptics have—a greater affinity for the constituent elements of the body than they have for any bacteria.' Even regarding skin-disease, Sabouraud, the eminent authority on this subject, states, 'Curious indeed is the failure of antiseptics in connection with the treatment of bacterial diseases of the skin. If that is the case where the lesion is visible, and the application of the antiseptics can be made directly to the affected spot, how much more likelihood of failure is there from the injection of such fluids into a complex cavity like the udder!' In spite of the lack of any faculties for the exhaustive prosecution of investigation regarding a better treatment than is at present available—and such investigations must be directed more towards the field of bacterial vaccination as a treatment than to chemical application—we have been able to make a large number of tentative experiments. The results need not be detailed here. Suffice it to say that, provided the boracic-acid injections (which are not strictly bactericidal for this microbe) are commenced sufficiently early—and this depends upon the disease being detected in the early stages—and prosecuted in a rational manner, apparent recovery at least will be manifested.

"The Method of Procedure. This is as follows: By means of an ordinary enema syringe, the nozzle of which has been replaced by a teat syphon, from 4 oz. to 6 oz. of a 4 per cent. solution of pure boracic acid should be injected through the teat-canal into the affected quarter, after thorough milking and thorough disinfection of the skin of the udder. Prior to this it is important to see that the syringe has been thoroughly boiled, and it is equally important to boil it again after using. The solution of boracic acid should be made with distilled water or rain-water, previously boiled, and should be injected at a temperature approaching blood-heat—viz., 100° to 102° Fahr. After injection the solution

should be allowed to remain in the udder for about ten minutes, during which time gentle but thorough massage of the quarter is conducted, following which the fluid should be withdrawn. This treatment should be applied twice daily for from three to five days, and then discontinued.

"During the progress of the treatment little or no improvement may be manifested—indeed, the disease may appear to become aggravated—but after its discontinuance recovery will take place fairly rapidly. This recovery, however, is seldom complete. The milk may seem normal to the naked eye, and no deposit may form after standing for a time, yet microscopical examination will often detect enormous numbers of pus-cells in the cream (which seems more abundant than usual), and bacteriological methods can still demonstrate the presence of the causal streptococcus. Therefore such a cow after treatment should be dried off for the season, or, at any rate, turned out with a calf at foot, and thereafter fattened off.

"For the practical dairy-farmer I do not recommend the trouble of attempting treatment of an affected cow. The important matter is to prevent its spread to others. The wise man will, therefore, turn her out with a calf at once, or dry her off and fatten for the butcher.

"**Black-leg.** Once more, during the whole season, the work of inoculation against this disease has been performed by the district inspectors of stock, Messrs. Budge, Hignett, and Brittain, under the supervision of Mr. Young, Government Veterinarian, with admirable satisfaction. The results are all that could be desired. The disease has practically disappeared, and but for the unfortunate transference of farms to new owners one might look forward to an early cessation of the necessity for this work. The new arrivals are often unacquainted with the disease, and so, being unable to detect an outbreak at its commencement, are liable, albeit unwittingly, to again assist its spread.

"During the past season the necessary vaccine for the inoculation of calves has, as formerly, been prepared at the laboratory. Mr. Young reports that 30,970 calves have been inoculated, with the most satisfactory results. Mr. Young repeats the suggestions which he offered a year ago, and which appeared in last annual report. Unfortunately for the safe and proper carrying-out of the regulations, were Mr. Young's alterations approved there would be a great difficulty and, indeed, perhaps danger experienced by leaving the decision as to which districts are to be exempted to the discretion of the local inspector. Were such inspector permanent, the difficulty would be removed; but the changes apparently rendered necessary may obviously come to mean the discretion being left in the hands of a stranger, comparatively, to the district.

"**Other Diseases.** No cases of anthrax have been reported, and it is hoped that the danger of importing fresh sources of infection has now been effectually overcome.

"Swine-fever has long ago ceased to be a danger, no case having come under observation for a number of years. The necessity for exer-

cising care lest it be reimported from Great Britain or Australia still remains, especially when it is remembered that in certain phases of the disease no symptoms are manifested.

“Swine-plague (pasteurellosis of pigs) seems to still exist to some extent, but, excepting amongst young pigs, causes little or no loss. It is, however, a disease that, in view of the increasing importance of the pig-raising industry and the rising value of pigs, requires closer surveillance than it has received in the past. Unfortunately, other diseases of the respiratory organs, particularly verminous bronchitis, present similar symptoms—at least, to the casual observer—and the two are often confounded, even on *post-mortem*, by the inexperienced and ignorant.

“**Braxy-like Disease amongst Sheep** has to a great extent disappeared in the South. The proof of this is contained in the fact that for the past few years we have been unable to secure satisfactory cases for the continuance of our experiments, and these are required in order to compare with the observations and results obtained by investigators of braxy in Europe, such as Neilsen, Hamilton, and others.

“Actinomycosis is frequently met with, and, apparently owing to the nature of the parasite, will remain a recurrent cause of trouble to stock, particularly cattle. A number of cases in the tongue of cattle have recently been reported by meat-inspectors.

“Malignant growths of a cancer nature are still prevalent amongst stock, judging by the number of specimens received at the laboratory for examination. In this connection the Dominion, with the material available and the comparatively low price of stock, offers a very favourable field to the scientific investigator. In spite of the quantity of statistical material we have collected, there has been nothing to lead to the conclusion that there is any degree of contagion operating in the occurrence of such neoplasms.

“Avian diphtheria has not come under our observation during the past year—so it may be hoped that this poultry disease has to a great extent disappeared.

“Hydatids in animals seem also to be on the decrease, judging by the reports from the abattoirs and meat-export slaughterhouses where all animals are inspected after slaughter. The decrease is not great, but still it is pleasing. It must be attributed to greater care in the feeding of dogs on offal, which has arisen partly through increased knowledge on the part of the farmer, partly to the increased value of stock, and chiefly to the subdivision of land into smaller areas, the occupiers of which are more careful regarding the disposal of dead carcasses and the feeding of dogs than were the employees on larger properties.

• “**Lympho-adenitis (Pseudo-tuberculosis)** in sheep is also on the decrease. It is chiefly confined to merino-cross sheep, and, unless in special districts, seems to cause little damage to the flock.

“Fluke in sheep and cattle has been proved to exist in the Nelson Province, as well as in Hawke’s Bay. Inquiries made show that it must have been present in the former district for some years. It has also

been observed on the west coast of the South Island in stock slaughtered at the abattoir, but the instances are rare. In no case does the disease appear to have spread, and it cannot be looked upon as a serious matter, although it requires to be kept under surveillance.

"Tuberculosis in fowls is still more prevalent than is desirable. In view of the absence of any legal control of the disease it is impossible to prevent its spread, and as there is no inspection whatever of poultry, either for local consumption or for export, it is impossible to form any estimate of its real extent. Cases only come under observation when a mortality or sickness is reported by an owner, and this occurs periodically. Usually it may be presumed that the owner, when apprised of the existence of the disease and its nature, clears out his stock, and so assists in the spread. Tuberculosis is a disease that undoubtedly requires for effectual control to be attacked in all its phases and manifestations, whatever may be the species of animal affected—human, bovine, porcine, or avian.

"There is nothing fresh to report concerning contagious abortion and sterility. From what I am able to gather through the scant means at my disposal, while the latter complaint or phase is decreasing or, at all events, is being rendered less and less troublesome by intelligent application of the measures recommended by the veterinary division, the former seems to be on the increase. That is not difficult to understand: the disease being in no way under departmental control, our action is entirely limited to giving advice and warning.

"Cirrhosis of the Liver (so-called 'Winton Disease') of Horses, Cattle, and Sheep. During the past few years cases of mortality from this disease have seldom come under the observation of the division. This may to some extent be due to the control over the exciting cause (the ragwort plant, or *Senecio Jacobæ*), of the chronic hepatitis, although even in spite of this the plant would appear to be spreading gradually but persistently in certain districts.

"As has been shown in previous reports dealing with the investigation of the disease, the livers of certain animals may be badly affected and yet no symptoms be manifested until other complications occur, when death ensues with great rapidity, provided proper treatment is not adopted. Again, in isolated cases animals may die from the disease and the owner be entirely unaware of the nature of the malady. That more animals are affected to a greater or less extent than is generally believed is proved by the observations of Mr. Sabin, Government Veterinarian, supervising meat inspector in Southland, who states that in about 20 per cent. of the old cows received at the works the livers are affected to a greater or less degree. As ragwort is to be found to some extent all over Southland, it is not surprising that so many cattle are found to be suffering from chronic cirrhosis through its ingestion."

AUSTRALIA

EFFECT OF GOOD SEASONS

“From 1903 to 1906 the seasons were remarkably good, and so astonishing is the recuperative power of Australia that during that short period its sheep increased from fifty-three to eighty-three millions, notwithstanding the simultaneous creation of a great export trade in frozen mutton and lamb to Great Britain and other oversea destinations, and the provision of an ample meat-supply for home consumption. In this four-year period no fewer than 52,000,000 sheep and lambs were slaugh-



A MOB OF FAT CATTLE (GRASS-FED), NEW SOUTH WALES

tered in the Commonwealth for these purposes. Such figures, taken in conjunction with the rapid increase of the flocks, show how great are Australia's powers of recovery after unfavourable seasons.”

Farmers' Flocks. “With the increase of smaller holdings, and also, to some extent, because of a growing demand for wools of coarser type, a great deal of attention has been paid in recent years to raising British breeds of sheep, such as Lincolns, Leicesters, Shropshires, and South-downs, and their respective crosses with the merino. Good cross-breds between some of these breeds and the merino make excellent farmers' sheep, and are more profitable on small holdings than merinoes, which prefer wider spaces to roam over. Another valuable type—known locally as ‘comebacks’—are the progeny of cross-bred ewes and merino rams. The wool, in this case, is improved by breeding back to one of the original progenitors of the type, without diminishing too much the size of frame. The extent and promise of the lamb-export trade (dealt with separately in these pages) has given a great impetus to sheep husbandry as part of

the regular routine of farming, especially in the Wimmera, Mallee, and northern districts, where the farmers at first devoted their attention almost exclusively to grain-growing."

VICTORIA'S MEAT EXPORT TRADE

"In addition to supplying beef, mutton, and lamb for home consumption in the State, an important export trade in frozen and preserved meat has been opened up to oversea markets by Australia. The export of frozen lambs, in particular, is assuming great proportions, and in this business Victoria leads all the Australian States. New Zealand pioneered the way for this important industry, and the value of her exported products of mutton and lambs has risen during the last twenty-five years from a modest output of £20,000 to over £3,000,000 per annum.

"The Australian States have profited by the experience of New Zealand, and are following her example. The improvements in cold storage which have taken place in recent years enable meat, butter, and fruit to be transported round the world in perfect condition, while the fact that the seasons in Australia are the converse of those of the northern hemisphere (where the great populations of consumers are) gives unique advantages to Australian producers. September, October, and November—autumn in the old world—are spring months here; the pastures are then in the full flush of growth; sheep and lambs are in prime condition, and dairy produce is in greatest abundance. This produce, therefore, when it arrives in the markets of Great Britain and the Continent, has less competition to face than if the seasons were uniform. Another distinct advantage, in respect to the unlimited possibilities of expansion in the frozen mutton and lamb trade of Australia, is that the flocks of sheep in the older settled countries are diminishing, while they are rapidly increasing here. Australia has 83,000,000 sheep; Argentina, 74,000,000; the Russian Empire, 64,000,000; the United States, 50,000,000; the United Kingdom, 30,000,000; New Zealand, 21,000,000; British India, 17,000,000; France, 17,000,000; Spain, 13,000,000; Cape Colony, 11,000,000; Germany, 8,000,000; and Canada, 2,500,000.

"The export of frozen mutton and lamb from Australia rose from £492,000 in 1903 to over £1,000,000 in 1906, and Victoria contributed a larger proportion of this output than any other State. The countries to which it was exported, besides the United Kingdom (to which the greater portion was sent), included Natal, Cape Colony, the Philippines, Malta, Egypt, Canada, Hong Kong, Gibraltar, Ceylon, and Straits Settlements. The refrigerating chamber in ocean liners has practically opened up the markets of the world for the meat and dairy products of Australian farms, and for the fruits of Australian orchards."

Frozen Lamb Trade. "All breeds of sheep are laid under tribute for the frozen lamb trade; but the favourite 'farmer's sheep' are good cross-breds, obtained from merino or comeback ewes mated with Lincoln or



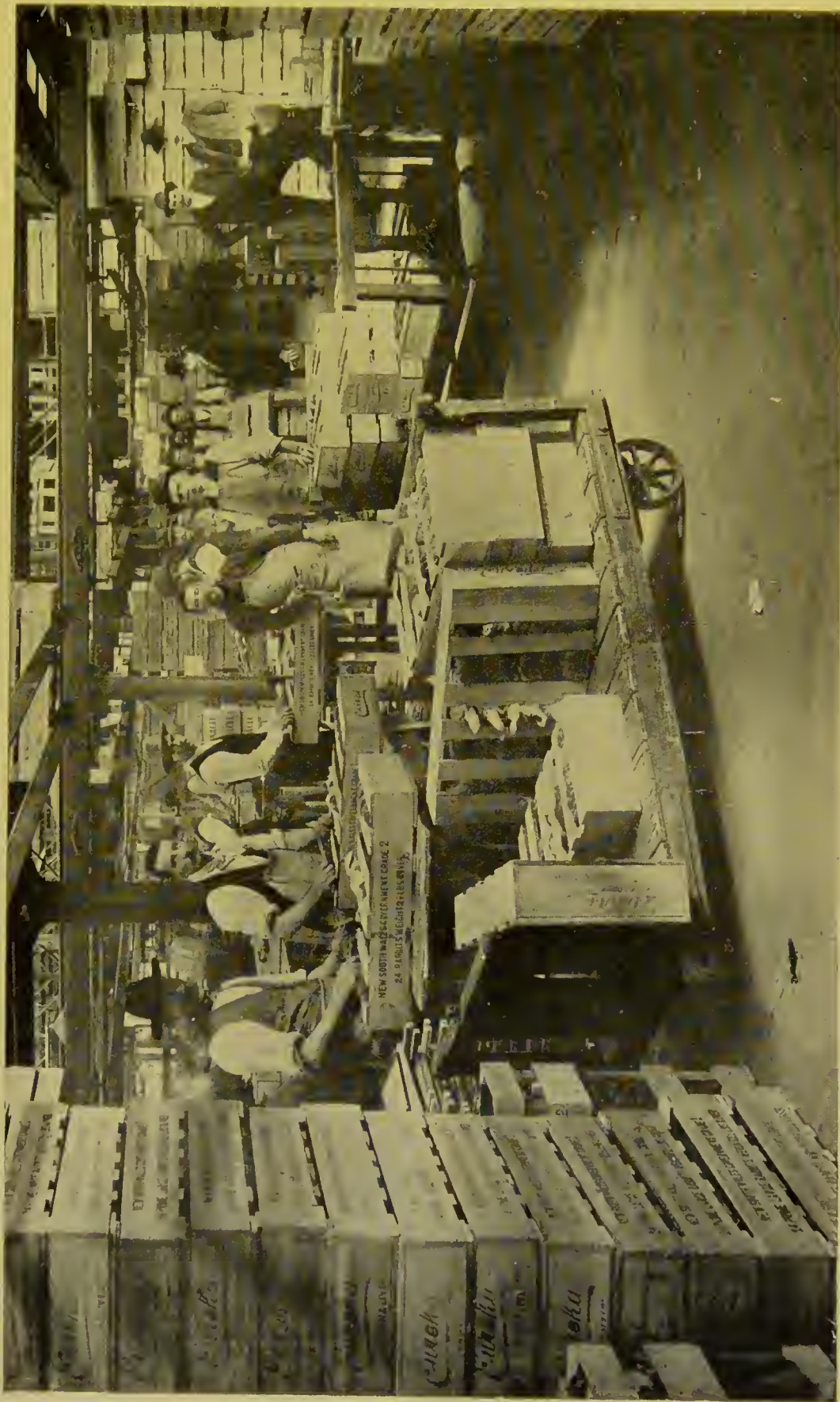
ABATTOIRS AT GLEBE ISLAND, SYDNEY, NEW SOUTH WALES, USED AS AN ABATTOIR AND MEAT MARKET

Leicester rams, and, better still, coarse cross-bred ewes mated to Shropshire or Southdown rams. The lambs mature rapidly, with the ewes on natural pasture, and at four to five months weigh 36 to 40 lb. (dressed weight). The northern portions of the State—as the Wimmera, Mallee, and northern districts—are particularly well adapted for lamb-raising. The winters are short and mild; the springs as a rule are warm and genial, and the native pastures extremely nutritious, so that the lambs grow quickly and are the first in the market.”

Government Supervision. “Lambs at four to five months old, suitable for export, sell readily at 12s. to 14s. apiece—a price which pays the farmer handsomely. They are killed and dressed under the supervision of expert officers of the Department of Agriculture. This applies also to all meat for export, whether as frozen carcasses or preserved. This supervision is very properly exercised in order to prevent injury by sharp-trade practices to an industry which, conducted on sound lines, is capable of almost unlimited expansion. The sum paid by Great Britain for meat products, exclusive of bacon and hams, is £21,000,000 a year, and for bacon and hams £16,000,000 a year. This enormous market is only beginning to be exploited by Australia, and both the Government and the people of the Australian States recognise, as a question of national importance, that the confidence of British consumers must be secured for the sound and wholesome food-stuffs Australia can send them. This is the spirit which inspires Governmental activity in the supervision of exported products, and simultaneously provides educational assistance for producers in their efforts to reach the highest standard of excellence in production and marketing. For some years the Victorian Government has conducted extensive cool stores in Melbourne, where frozen meat, butter, rabbits, and fruit are received, stored, inspected, and graded. A trained staff of experts has provided in this way an admirable service for producers and exporters. A mutton or lamb carcass is dressed, wrapped in neat calico wrappers, frozen and kept in cold stores until ready for shipment, for 2s. 1d., and carried in the refrigerating chambers of the ocean liners from Melbourne to London for 2s. 7d.

Room for Expansion. “There is plenty of room for expansion in this department. Taking the world as a whole, the number of sheep is decreasing, while the demand for mutton and wool is steadily increasing, owing to the continuous growth and spread of population. The possibilities, then, for settlers in Victoria to embark in the sheep industry are unbounded. The soil and climate are well suited to the production of lamb, mutton, and wool, flocks being kept on open pasture all the year round. The Victorian export of wool, mutton, skins, and tallow in 1908 was as follows :

Wool	£3,928,557
Mutton and lamb	402,699
Sheep-skins	558,162
Tallow	119,652



COLD STORAGE, DARLING HARBOUR
Packing rabbits for export, New South Wales

“That there is a practically unlimited market in the United Kingdom for an enormously increased production of wool and mutton in Victoria will be readily seen from the following figures :

“IMPORTS INTO THE UNITED KINGDOM, 1908

From	Wool.	Mutton and lamb.
Victoria	£3,269,901	£397,454
Other Australian States	10,142,353	797,805
New Zealand	5,941,765	3,452,584
Argentina	1,680,061	2,512,656
Other countries	6,963,248	987,958
Total	£27,997,328	£8,148,457”

BEEF PRODUCTION

Indebtedness to British Breeders. “Australia, like all other stock-raising countries, is indebted to the skill of British breeders for its high-class beef and its dairy cattle. Of late years dairying has assumed such large proportions in Victoria that beef cattle do not receive the attention once paid to them. Jerseys and Ayrshires, so valuable as milk-producers, do not produce such good steers for fattening as the special beef breeds. In the early days of settlement some magnificent Shorthorn herds were maintained in the State, and their progeny have gone all over Australia, especially to Queensland and Western Australia, to improve station cattle. A movement has set in of recent years to improve the milking strain of Shorthorns, with the object of making the progeny more valuable for milk as well as beef. Pedigreed stock of all breeds—Shorthorns, Herefords, Polled Angus, Jerseys, and Ayrshires—are frequently imported from Great Britain to improve the standard of stud cattle, and the sales of their pedigreed descendants are one of the special features of the Annual Show of the Royal Agricultural Society held in Melbourne. Store bullocks of the beef breeds from large cattle-runs in Victoria and New South Wales are frequently purchased by farmers for fattening for local markets and the export trade.

“Export of Frozen Rabbits. A summary of the export trade of frozen meat would not be complete without some reference to rabbits. Enthusiastic but misguided Victorian landowners introduced the rabbit from Great Britain about 1864 for the purposes of providing shooting on their properties. The rabbits were zealously protected for a few years after they were first turned out, but they soon increased with alarming rapidity. They have since appeared in practically the whole of the settled portions of Australia, and have proved a veritable scourge to landowners. Millions have been spent in keeping them in check, and unceasing work has to be carried on in districts infested with them to prevent their depredations becoming a menace to stock-owners. For some years a large export trade in frozen rabbits and hares to Great

Britain, and other oversea countries has been maintained by Victoria. The work provides employment for great numbers of rabbit-trappers in country districts near lines of railway. No fewer than 2,826,794 pairs were exported to oversea countries in 1900, 2,068,915 pairs in 1901, 3,213,376 pairs in 1902, 3,447,077 pairs in 1903, 4,045,036 pairs in 1904, 5,093,952 pairs in 1905, 4,622,307 pairs in 1906 and 3,251,231 pairs in 1907. The value of the exports in the latter year amounted to £154,789.

“ Value of Live-stock : Range of Prices. The number of cattle of all kinds of beef and dairy breeds in Victoria on December 31, 1906, was 1,804,323, and their value, as estimated by the Commonwealth Statistician, was £12,630,000. The number of sheep and lambs at the same date was 12,937,440, and their estimated value £7,116,000.”

LIVE-STOCK PRICES

“ The Table on the following page, taken from the ‘ Victorian Year Book,’ issued by the Government statist, shows the average and range of prices in Melbourne for live-stock during the years 1905 and 1906.

“ PIG-BREEDING, REARING, AND FATTENING

“ There is no class of stock-breeding which holds out greater promise of reward to the new arrival in Victoria than pig-raising. Prices for pig products were never higher than they are at present, yet, singularly enough, pigs are about the only kind of stock in the State which show no increase in numbers. As a matter of fact, the number of pigs has fallen considerably in recent years. In 1901 there were 350,370 pigs in the State. In 1905 they had fallen to 286,070 ; in 1906, to 273,682 ; in 1907, to 220,452 ; and in 1908, to 211,000.

“ The pig industry is well suited for the farm, whether it is devoted to dairying, grain-growing, root-crops, or fruit-raising. It is particularly well suited for settlers with limited capital, on small holdings. Soil and climate in all the agricultural districts are well adapted for pigs, and also for raising food-supplies for growing and fattening them.

“ In districts of good rainfall and in the irrigation areas, where water is available for irrigation, a lucerne field is one of the best adjuncts to a pig farm. The breeding sows and young stock thrive on lucerne. In most of the dairying districts there is always a surplus of skim-milk, after providing for the calves, from the dairy farms and butter factories, which could be turned to no better account than feeding pigs. The Government statist estimates that in March 1908, there were 709,279 dairy cows in Victoria. The milk yield, after supplying the quantity required for consumption in its natural state, provided for the manufacture of 63,746,354 lb. of butter in 1907. The same official points out that the by-products resulting from this output would be equal to 1,385,000,000 lb. of separated milk. After allowing for the quantity

Stock.	Prices in 1905.						Prices in 1906.									
	Average.			Range.			Average.			Range.						
<i>Fat Cattle</i>	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
Bullocks :																
Extra prime . . .	12	14	0	11	0	0 to 14	8	6	13	5	6	10	10	0 to 16	10	0
Prime	11	3	0	10	0	0 „ 12	15	0	11	7	10	9	5	0 „ 13	15	0
Good	9	10	0	8	10	0 „ 10	15	0	9	9	0	7	15	0 „ 12	0	0
light, handy wts.	8	3	0	7	2	6 „ 9	12	6	7	16	6	7	10	0 „ 10	5	0
Second	6	12	6	5	0	0 „ 8	2	6	6	8	2	5	0	0 „ 8	15	0
Cows :																
Best	8	0	0	6	0	0 „ 9	10	0	8	1	3	6	10	0 „ 10	0	0
Others	5	13	0	4	0	0 „ 7	15	0	5	14	0	4	0	0 „ 8	0	0
Calves :																
Prime steers and																
heifers	4	14	0	3	12	6 „ 5	16	0	4	11	4	3	10	0 „ 6	0	0
Prime calves . . .	2	15	3	2	2	6 „ 3	15	0	2	14	5	2	0	0 „ 3	10	0
Other good	1	14	8	1	2	6 „ 2	10	0	1	16	2	1	7	0 „ 2	10	0
<i>Dairy Cattle</i>																
Best milkers . . .	9	18	0	8	12	6 „ 11	17	6	10	2	5	9	0	0 „ 12	15	0
Good	7	17	3	6	15	0 „ 8	17	6	8	0	7	7	0	0 „ 9	15	0
Medium	6	0	0	5	0	0 „ 6	12	6	6	2	0	5	0	0 „ 7	10	0
Inferior	4	13	0	3	10	0 „ 5	10	0	4	2	0	4	0	0 „ 4	15	0
Springers (best) .	8	5	9	7	0	0 „ 10	7	6	8	9	4	7	10	0 „ 10	10	0
Heifers (best) . .	6	7	3	4	11	0 „ 7	10	0	6	14	4	5	5	0 „ 8	2	6
Dry cows	4	9	0	3	12	6 „ 5	0	0	4	12	6	3	15	0 „ 5	0	0
Stores	2	15	6	2	5	0 „ 3	17	6	2	16	0	2	15	0 „ 4	0	0
<i>Fat Sheep</i>																
Wethers (cross-bred) :																
Extra prime . . .	1	2	5	0	16	3 „ 1	8	6	1	2	8	0	17	0 „ 1	8	3
Prime	1	0	3	0	15	6 „ 1	4	3	0	19	9	0	15	0 „ 1	3	6
Good	0	17	0	0	13	3 „ 0	19	0	0	14	10	0	12	0 „ 1	0	0
Ewes (cross-bred) :																
Extra prime . . .	1	0	3	0	14	6 „ 1	5	6	0	19	10	0	14	0 „ 1	5	4
Prime	0	17	10	0	13	3 „ 1	2	0	0	17	8	0	13	6 „ 1	2	6
Good	0	15	3	0	12	3 „ 0	19	0	0	14	10	0	12	0 „ 1	0	0
Wethers (Merino) :																
Prime	0	19	1	0	14	9 „ 1	3	9	0	18	9	0	14	0 „ 1	4	6
Good	0	16	2	0	12	6 „ 1	0	0	0	15	7	0	12	0 „ 1	0	0
Ewes (Merino) . . .	0	13	2	0	8	3 „ 0	19	0	0	13	7	0	10	6 „ 0	19	9
<i>Fat Lambs</i>																
Extra prime . . .	0	17	1	0	14	9 „ 1	1	0	0	16	9	0	13	0 „ 1	2	3
Prime	0	14	8	0	12	10 „ 0	17	3	0	14	5	0	11	6 „ 0	17	0
Good	0	12	5	0	10	6 „ 0	15	0	0	12	3	0	9	0 „ 0	15	0
Second	0	10	2	0	7	9 „ 0	12	0	0	10	1	0	7	6 „ 0	13	6
<i>Pigs</i>																
Backfatters :																
Extra heavy . . .	3	19	6	3	2	6 „ 4	11	3	3	15	0	2	15	0 „ 4	16	0
Prime, extra prime																
and weighty . .	2	12	4	2	5	0 „ 3	1	0	2	11	4	2	5	0 „ 3	2	0
Baconers :																
Extra prime . . .	2	10	3	1	19	0 „ 3	6	6	2	11	2	2	0	0 „ 3	6	0
Prime	2	3	0	1	10	6 „ 2	17	0	2	4	8	1	15	0 „ 2	10	0
Porkers	1	3	11	0	19	0 „ 1	9	6	1	6	3	0	19	0 „ 1	15	0
Stores	0	13	6	0	11	6 „ 0	17	0	0	14	2	0	10	0 „ 1	3	0
Slips and suckers .	0	6	4	0	3	9 „ 0	10	0	0	6	7	0	4	0 „ 0	13	0

used in rearing calves, he estimates that 1,000,000,000 lb. remained, or sufficient to produce about 40,000,000 lb. of pork.

“ In the same period, 13,609,144 lb. of hams and bacon were cured in the leading ham- and bacon-curing factories, and 3,936,576 lb. in small

curing works and on the farms. All told, therefore, the output of hams and bacon for the year 1907 was 17,545,720 lb., of which 4,423,562 lb., of the value of £155,828, were exported—almost entirely to the other Australian States. There were also 5,789,070 lb. used in the form of pork. The number of pigs reared during the year was 242,600, and their total value was £425,000.

“POULTRY-RAISING IN VICTORIA

“The Government statist estimated the value of poultry products raised in the State in 1907 at £1,525,000—about half the value of an ordinary wheat crop. This estimate, of course, includes what is consumed on the farms, as well as what is sent to market.

“Speaking generally, despite the very suitable climate, poultry-raising is not specialised to any extent, but is an adjunct of farm, orchard, market-garden, and vineyard work. In this way it is an important source of revenue to many landowners. At the last census (1901) there were 132,419 poultry-owners, who owned in the aggregate 3,619,938 fowls, 257,204 ducks, 76,853 geese, and 209,823 turkeys. In the interval, the number, especially of fowls, has largely increased. The Department of Agriculture makes praiseworthy efforts to promote poultry-raising. Experts are sent through the agricultural districts to disseminate information in respect to breeding and management, and at the agricultural shows demonstrations in dressing and preparing poultry for the table and for market are given.

“Strains of the best breeds for table purposes and for egg-laying are raised in the State, and from time to time birds are imported from Europe and America to improve these. From breeders of repute, in Victoria, birds and eggs of high quality can be obtained at reasonable prices, so that the opportunities poultry-owners have of improving their stock are as good as can be obtained anywhere.

“At the Government cool stores in Melbourne, the Department of Agriculture maintains a staff of experts who grade, kill, pluck, and pack poultry sent in for export to the neighbouring States, South Africa, and Great Britain. The charge for preparation (including the case for packing, freezing and twenty-one days' free storage in the freezing chamber) is only 7*d.* per pair for chickens and ducklings, and 1*s.* per pair for turkeys. Ducklings exported to the United Kingdom in 1907 realised from 1*s.* to 1*s.* 1*d.* per lb., and chickens from 10*d.* to 11*d.* per lb., in the London market. English buyers, through their agents in Melbourne, have a standing offer of 6*d.* per lb., live-weight, for all ducklings, chickens, and turkeys which are approved for export by the Government graders. As the United Kingdom annually imports over £1,000,000 worth of poultry and game and over £6,000,000 worth of eggs, there is practically an unlimited market at remunerative prices for all the poultry products raised in Australia. Altogether, 41,000 head of poultry were examined by the Government graders and passed for export to London, South Africa, and Western Australia in 1907.

“Eggs are produced in greatest quantity in the spring months—August, September, and October—and, if exported then, arrive in England in autumn and winter, when the markets are bare and prices good. Several trial shipments have been made, and the prices realised were satisfactory. But production is not yet sufficiently large, after providing for local requirements, to allow of regular shipments being made. Great quantities are placed in cold storage for use locally in the winter months (May, June, and July), when eggs are always dear in this and the neighbouring States. Charges made by the Department for cold storage only amount to 3*d.* per case of twenty-five dozen eggs for the first week, and 1½*d.* per case for each additional week.”

CHAPTER VIII

MEAT INSPECTION AND THE LAW

IN this chapter we shall briefly summarise the most important legal points which may come up for decision in connection with the meat industry. The statutes themselves will be quoted later in Vol. V., in so far as is necessary for our purpose.

It is important that those who are connected in various ways with the meat industry should be familiar with the more prominent features of the law of the land in the matter, especially in connection with the exposure for sale of meat which is seized as unfit for human consumption, because, as we have pointed out elsewhere, the responsibility in this country is thrown upon the vendor or purveyor, who is liable to severe penalties. For purposes of interesting comparison in some matters relating to abattoirs and inspection, we have quoted in Vol. V. the regulations of some countries abroad, where more attention has been paid to the subject than has been the case here.

Legal Proceedings. Laws relating to meat inspection are directly the outcome of comparatively modern ideas, and it is therefore to the Statute Book that one has to look. In certain circumstances, however, the exposure for sale of unsound food has always been an offence at common law (*Reg. v. Stephenson*, 1862, 3 F. & F. 106). Various Acts in England and Scotland, both public and private, have contained provisions dealing with the subject, but these, where not repealed, are made of little use by the more recent Public Health Statutes, which regulate the law on this as on other matters affecting the health of the community. These Acts are the Public Health Act, 1875, and the Public Health Acts Amendment Act, 1890, with regard to England in general; the Public Health (London) Act, 1891, with regard to the metropolis; and the Public Health (Scotland) Act, 1897, in regard to Scotland. The general scheme of each Act is very much the same, but the Acts differ considerably in detail.

England. The sections of the English Public Health Act dealing with unsound meat are sections 116 to 119 inclusive. The first of these sections deals with power to inspect. The Act does not specifically provide (as the Scottish Act does) that the officer inspecting a living animal must be, or be accompanied by, a qualified veterinary surgeon. The L.G.B. have, however, issued a memorandum dealing with the qualifications for meat inspectors. The meat must be deposited for sale and this will not necessarily be assumed though it is found in a shop. (See *Wieland v. Butler-Hogan*, 1904, 73 L.J., K.B., 513; 90 L.T. 588; 68 J.P. 310.) In that case unsound meat was found in a butcher's safe

on a Monday, but the safe had not been opened since the Saturday, and it was proved that according to the ordinary course of business the meat would have been examined before being exposed for sale. In these circumstances the conviction of the butcher was quashed.

In regard to what may be considered a "reasonable time" for inspecting meat, some latitude will be allowed.

It has been expressly decided that the word "animal" in the section includes "live animal" (*Moody v. Leach*, 1880, 44 J.P. 459). The kinds of food to which only the section applies are specifically enumerated, but in addition sect. 28 of the Public Health Acts Amendment Act, 1890 (53 & 54 Vict., c. 59) provides, that where it has been adopted by the local authority, sects. 116-119 of the 1875 Act shall extend and apply to all articles intended for the food of man sold or exposed for sale or deposited in any place for the purpose of sale or of preparation for sale within the district of any local authority.

What is the Meaning of "Place" ? Questions may arise as to the meaning of the word "place" in the section. It has been held in regard to the meaning of the word in the corresponding section of the Nuisances Removal Act, 1863, that it was used in a general sense and was not limited in its meaning to places *ejusdem generis* with "slaughterhouse, shop, building, or market" there mentioned. Accordingly it was held that a yard within which there was a slaughterhouse was a "place" within the meaning of the Act (*Young v. Gattridge*, 1868, L.R. 4 Q.B. 166 ; 33 J.P. 260). Similarly in the Irish case of *Daly v. Webb* (1869), 4 Ir. C.L.R. 309, diseased meat being conveyed on a cart from a slaughterhouse to a factory was held, under a corresponding section of 26 & 27 Vict., c. 117, to have been properly seized.

Section 117 deals with the procedure in having the animal or article condemned. This is in the sole discretion of the justice, who may condemn without hearing evidence on behalf of the owner or even without notice to him. The animal or article must be condemned within a reasonable time after seizure, but it has been held that this need not be done the same day (*Burton v. Bradley*, 1886, 51 J.P. 118).

Prosecution and Penalty. Section 117 also deals with prosecution of the owner of the animal or article or the person in whose possession or at whose premises the same was found. The section provides a penalty "not exceeding £20 for every animal carcase or fish, or piece of meat, flesh or fish, or any poultry or game, or for the parcel of fruit, vegetables, corn, bread, or flour, or for the milk so condemned, or at the discretion of the justice without the infliction of a fine to imprisonment for a term of not more than three months." It has been held under the similar provisions of the London Public Health Act of 1891 that a private person may prosecute, and it has been held that the magistrate, in condemning the article, must consider the question irrespective of whether it was intended for the food of man or not. Penalties, however, can only be recovered where it is shown that the animal or article was intended for the food of man, or was sold or exposed for sale, or deposited in any place

for the purpose of sale. If a person has in his possession unsound meat intended for the food of man, he is liable to the penalty although the same is not exposed for sale (*Mallinson v. Carr*, 1891, 1 Q.B. 48 ; 55 J.P. 270).

The London Act of 1891 (sect. 47 (3)) provides for the prosecution of a vendor of unsound meat even after the animal or article has passed into the possession of the vendee. The general English Public Health Acts do not contain any similar provision, but the Scottish Act of 1897 does, and also provides that, where the jurisdiction in which the vendor and vendee respectively reside is not the same, the vendor may, nevertheless, be prosecuted in the Courts of the jurisdiction where the animal or article was seized.

Persons aiding and abetting the exposure of unsound meat may be prosecuted under the provisions of the Summary Jurisdiction Act, 1848.

Section 118 deals with the obstruction of an officer in the exercise of his duties under the Act.

Section 119 deals with the procedure in obtaining a warrant to enter premises where there is reason to believe unsound food is kept, and to search for and seize and carry away the same, and provides a special penalty not exceeding £20 in addition to any other punishment for which he may be liable for any person obstructing an officer in this duty.

The Enactments affecting Scotland. The Public Health (Scotland) Act, 1897 (60 & 61 Vict. cap. 38), contains the leading enactments on the subject so far as affecting Scotland. Section 43, which comes in place of sect. 26 of the earlier Scots Public Health Act of 1867, is in these terms: “(1) Any medical officer or sanitary inspector or any veterinary surgeon approved for the purposes of this section by the local authority may at all reasonable times enter any premises within the district of the local authority, or search any cart or vehicle, or any barrow, basket, sack, bag, or parcel, in order to inspect and examine and may inspect and examine (a) any animal, alive or dead, intended for the food of man which is exposed for sale, or deposited in any place, or is in course of transmission for the purpose of sale or of preparation for sale ; and (b) any article, whether solid or liquid, intended for the food of man, and sold or exposed for sale, or deposited in any place or in course of transmission for the purpose of sale or of preparation for sale, the proof that the same was not exposed or deposited or in course of transmission for any such purpose, or was not intended for the food of man, resting with the person charged ; and if any such animal or article appears to such medical officer or sanitary inspector or veterinary surgeon to be diseased or unsound or unfit for the food of man, he may seize and carry away the same himself or by an assistant, in order to have the same dealt with summarily by a sheriff, magistrate, or justice.

“ Provided that in the case of any proceeding under this section with regard to a living animal the medical officer or sanitary inspector, unless he is himself a qualified veterinary surgeon, shall be accompanied by a veterinary surgeon approved as aforesaid.

“The police force of each police area shall have power to search carts or vehicles, or barrows, baskets, sacks, bags, or parcels, and to assist generally in executing and enforcing this section.

“(2) If it appears to a sheriff, magistrate, or justice, that any animal or article which has been seized or is liable to be seized under this section is diseased or unsound, or unfit for the food of man, he shall condemn the same, and order it to be destroyed or so disposed of as to prevent it from being exposed for sale or used for the food of man ; and the person to whom the same belongs or did belong at the time of sale or exposure for sale, or deposit or transmission for the purpose of sale or of preparation for sale, or in whose possession or on whose premises the same was found, shall be liable to a penalty not exceeding fifty pounds for every animal or article, or if the article consists of fruit, vegetables, corn, bread or flour, for every parcel thereof so condemned, unless he proves that he and the person acting on his behalf (if any) did not know, and could not with reasonable care have known, that it was in such a condition, or where the proceedings are before a sheriff, at the discretion of the Court, if it finds that he has knowingly and wilfully committed the offence, he shall be liable, without the infliction of a penalty, to imprisonment for a term of not more than three months with or without hard labour, and also to pay all expenses caused by the seizure, detention, or disposal thereof.

“Provided that if such person proves that the animal or part thereof condemned as aforesaid was within a reasonable time prior to the seizure thereof examined upon the premises where the animal was slaughtered and passed by a veterinary surgeon approved as aforesaid called in for the purpose, and who shall have granted a certificate of passing as nearly as may be as in the next sub-section provided, or by a veterinary surgeon in terms of that sub-section, he shall be exempt from penalty or imprisonment under this section for such offence.

“(3) Each local authority, or two or more local authorities in combination, may, if they think fit, appoint a place or places within its district or their districts, and fix a time or times at which a veterinary surgeon approved as aforesaid shall attend for the purpose of examining any animal alive or dead which may there be submitted to him, and passing or condemning the same, and such veterinary surgeon shall, on receipt of a fee to be fixed by the local authority or authorities and paid by the owner, examine and pass or condemn in whole or in part any animal or carcase so submitted to him ; and if he shall pass the same he shall grant a certificate of passing which shall set forth the name of the owner, the date and hour of examination, and such particulars regarding the animal or carcase as the local authority or authorities may prescribe for the purpose of aiding in the subsequent identification of the same ; and if he shall condemn the animal or carcase, or part thereof, the animal or carcase or part so condemned shall be retained and be forthwith destroyed by the local authority or authorities or so disposed of as to prevent it from being exposed for sale or used for the food of

man, and the owner shall be entitled to the net price realised from the residual product of the carcase or part so condemned, if any, after deducting the expenses of condemnation and destruction. Provided that no carcase shall be submitted for examination, either under this or the immediately preceding sub-section, unless as a whole carcase, including the thoracic and abdominal viscera, in such manner that the examiner shall be readily able to satisfy himself that the organs are those of the carcase under inspection.

“(4) Where it is shown that any animal or article liable to be seized under this section and found in the possession of any person was purchased by him or consigned to him from another person for the food of man, and when so purchased or consigned was in such a condition as to be liable to be seized and condemned under this section, the person who so sold or consigned the same shall be liable to be brought to trial in the district in which such animal or article was seized, and on conviction shall be liable to the penalty and imprisonment above mentioned, unless he proves that, at the time he sold or consigned the said animal or article, he and the person acting on his behalf, if any, did not know, and could not with reasonable care have known, that it was in such a condition.

“(5) A copy of any certificate granted by a veterinary surgeon, under sub-section 2 or 3 of this section, shall forthwith be sent by him to the chief constable of the jurisdiction in which the examination of the animal or carcase took place, and the certificate itself shall be sent by the person selling the animal or carcase forthwith after the sale, and not more than seven days from the date of the certificate, to the chief constable of the jurisdiction in which the sale of the animal or carcase took place, and if any veterinary surgeon or person shall contravene this enactment he shall be liable to a penalty not exceeding twenty pounds.

“(6) Where a person convicted of an offence under this section has been within twelve months previously convicted of an offence under this section, the sheriff, magistrate, or justice may, if he thinks fit, and finds that the offender knowingly and wilfully committed both such offences, order that a notice of the facts be affixed, in such form and manner and for such period not exceeding twenty-one days as the sheriff, magistrate, or justice may order, to any premises occupied by that person and that the person do pay the costs of such affixing, and if any person obstructs the affixing of such notice, or removes, defaces, or conceals the notice while affixed during the said period, he shall for each offence be liable to a penalty not exceeding five pounds.

“(7) If the occupier of a licensed slaughterhouse is convicted of an offence under this section, the sheriff, magistrate, or justice convicting him may cancel the licence for such slaughterhouse.

“(8) If any person obstructs a medical officer, sanitary inspector, or veterinary surgeon as aforesaid in the performance of his duty under this section he shall, where the proceedings are before a sheriff, and where the sheriff is satisfied that the obstruction was with intent to prevent the discovery of an offence under this section, or that the accused

has within twelve months previously been convicted of such obstruction, be liable to imprisonment for any term not exceeding one month in lieu of any penalty authorised by this Act for such obstruction.

“(9) A sheriff, magistrate, or justice may act in adjudicating on an offender under this section whether he has or has not acted in ordering the animal or article to be destroyed or disposed of.”

The Power of the Inspector. It will be observed that the general scheme of the enactment is that there should be duly qualified inspectors who should on occasion and without the necessity of a special warrant seize any animal or article which they consider diseased or unsound or unfit for the food of man. An animal, alive or dead, cannot be seized after it is sold, but an article of food may under sub-sect. (1) (b) of sect. 43 be seized whether sold or only exposed for sale. In the case of the seizure of a live animal the inspector, if not himself a qualified veterinary surgeon, must be accompanied by a veterinary surgeon approved by the Local Authority under the Act. A veterinary surgeon is by sect. 3 defined as “a member of the Royal College of Veterinary Surgeons.” By sect. 169 of the Act, the constabulary or police force in their respective jurisdictions are directed to aid the authorities and officers acting under the Act, and in sect. 43, sub-sect. (1), power is given to the police to search carts, &c., and aid in enforcing the provisions of sect. 43 generally.

Obtaining a Destruction Order. After seizure, a warrant for destruction of the animal or article is obtained from a sheriff, magistrate, or justice, and it would seem that this order may be made without the necessity of giving notice thereof to the owner of the animal or article, and it has been held that when made there was no appeal from this order under the Summary Prosecutions Appeals Act, 1875 (*Couper v. Lang* 1889, 17 R. (Just.) 15), the ground of decision being that the obtaining of this order did not constitute a cause within the meaning of that Act. By the Summary Jurisdiction (Scotland) Act, 1908, which repeals the 1875 Act, a new appeal by way of stated case is given in all “causes” (sect. 60), and “cause” is defined in sect. 2 as meaning and including every proceeding brought under the Act, while in sect. 4 the Act is made to apply to *inter alia* any order *ad factum præstandum* or other order of Court or warrant competent to a Court of summary criminal jurisdiction. It is thought, therefore, that it might be held that there was now a right of appeal under the 1908 Act on the limited grounds mentioned in sect. 60 of that Act. If a prosecution is contemplated, application for a conviction may be made either along with the application for the destruction order or afterwards. It need not be made to the same judge who granted the Destruction Order (sub-sect. 9).

The word “premises” used in sect. 43 (1) is defined in sect. 3 as including “lands, buildings, vehicles, tents, vans, structures of any kind, streams, lakes, seashore, drains, ditches, or places open, covered or enclosed, whether built on or not, and whether public or private, and whether natural or artificial, and whether maintained or not under statutory authority, and any ship lying in any sea, river, harbour or

other water or *ex adverso* of any place within the limits of the Local Authority."

Condemnation and Prosecution. In a prosecution under the similar provisions of the Police and Improvement Act, 1850, it was held that a Destruction Order was not a condition precedent to a conviction (*Cairns v. Ferguson* (1886), 13 R. (Just) 83; see also *Philips v. Auld* (1891), 19 R. (Just.) 29 (prosecution under Public Health Act of 1867). But in the 1897 Act it is provided (sub-sect. 2 of sect. 43) that the "sheriff, magistrate, or justice . . . shall condemn," and the penalty is imposed, on each animal "*so condemned.*" These words do not occur in the Police and Improvement Act, but do occur in sect. 117 of the English Public Health Act of 1875. Under that Act it has been held that a destruction order was a condition precedent to a conviction. See *Vintner v. Hind* (1882), L.R. 10, Q.B.D. 63; 48 L.T. 359; followed under the Public Health (London) Act, 1891 in *Billing v. Prebble* (1896), 66 L.J., Q.B. 180; 61 J.P. 86. See also *Gibson v. Town Council of Ayr* (1892); 20 R. (Just.) 47, where Lord MacLaren treats the two processes of condemnation and prosecution as quite distinct and seems to indicate that the former is a necessary preliminary to the latter. Sheriff Maconochie took the same view in a recent unreported case in the Sheriff Court at Edinburgh, where a Destruction Order was said to have been dispensed with by arrangement with the owner of the animal slaughtered (*Thomson v. Magistrates of Edinburgh* 1908).

The Inspector's Right of Entry. A certain difficulty arises in regard to the inspector's right of entry to search premises. The Public Health Act does not give any right of forcible entry (except in sect. 18, which deals only with cases of nuisance), and although sub-sect. 8 imposes a penalty on persons obstructing the inspector, it has been held in an English case that where a butcher refused on a Sunday to go himself or send some one from his residence to his shop half a mile away with the key to admit the inspector to his shop to examine some meat, he had not "prevented, obstructed, or impeded" the inspector in carrying out the provisions of the Nuisances Removal Act, 1863 (*Small v. Bickley*, 32 L.T. 726; 39 J.P. 422).

In any complaint the prosecutor should aver and prove that the animal or article was not only exposed for sale or deposited or in course of transmission for such purpose, but that it was "intended for the food of man"—*Phillips v. Auld* (1892), 19 R. (Just) 29, 29 S.L.R. 299, where in a prosecution under sect. 26 of the 1867 Act the complaint was held to be irrelevant for this reason. Under the 1897 Act, however, the onus of proving that the animal or article was not exposed or deposited or in course of transmission for any such purpose, or was not intended for the food of man, is put on the person charged, sect. 43 (1).

The complaint need not state the cause of unfitness for human food. This was so decided in the case of *Cairns v. Ferguson* (1886), 13 R. (Just.) 83, and the case of *Gibson v. Town Council of Ayr* (1892), 20 R. (Just.) 47; 30 S.L.R. 331. It is better, however, as Lord Moncrieff

pointed out in the case of *Cairns*, that the cause should be stated, and it does not seem just in some cases that the accused should have to come into Court prepared with expert evidence to prove, say, that the meat was not tuberculous, while the prosecutor's case may be not that it was tuberculous but that it was unfit for human food for some other reason.

Typical Prosecutions. As to who may be prosecuted, reference may be made to the following cases: *Cairns v. Linton* (1889), 16 R. (Just.) 81, where a farmer in Perthshire sent to the Dead Meat Company, Edinburgh, in the ordinary course of business the carcase of a bull. The carcase was examined in Edinburgh and condemned as unfit for human food. The farmer was charged with a contravention of sect. 261 of the Edinburgh Municipal and Police Act in having in Edinburgh unsound meat "in his possession as or for human food." The Court held on the facts that it was not proved that the carcase was in his possession in Edinburgh as or for human food.

Neilson v. Parkhill (1892), 20 R. (Just.) 24. In this case a complaint under the Glasgow Police Amendment Act, 1890, charging a person with having been found in possession of diseased meat intended for sale for human consumption, set forth that the meat was seized in a barrow belonging to the accused, driven by his servant and under his order. Held that there was a relevant averment of possession by the accused. *Walker v. Linton* (1892), 20 R. (Just.) 1. In this case under sect. 22 of the Edinburgh Municipal and Police Amendment Act, 1891, which contains a similar enactment to that of sub-sect. 4 in regard to prosecution against the original owner of the condemned article, it was held that the enactment did not apply to an auctioneer to whom fish had been consigned for sale and who had sold them by auction to a fish-hawker in the ordinary course of his business.

The full penalty provided by the Act may lawfully be enforced for each animal or article in respect of which an offence is committed. See *Cairns v. Ferguson* (1886), 13 R. (Just.) 83. This was a prosecution under the similar provision of the Police and Improvement (Scotland) Act, 1850, sect. 181, which imposed a penalty not exceeding £10 for every animal or carcase. The accused were convicted under that section and were sentenced to a fine of 2s. in respect of each of thirty herrings unfit for food found in their possession. The conviction was upheld on appeal on the ground that the penalty was clearly applicable to any animal no matter what its size.

Protection for the Honest Dealer. It will be observed that sub-sect. (2) provides, in regard to carcasses, a mode of procedure whereby the honest dealer can avoid all penalties. If the animal was examined at the premises where it was slaughtered by a veterinary surgeon approved under sub-sect. (1) and passed by him, and a certificate to that effect granted by him, the dealer is exempt from prosecution.

Sub-sect. (3) provides for the local authority appointing if they think fit a veterinary surgeon who will pass or condemn all animals or carcasses submitted to him, this being another safeguard to the honest owner. It

will be noted that this sub-section applies to animals and carcasses or parts thereof only, and sub-sect. (2) apparently to carcasses or parts thereof only.

Sub-section (5) details the subsequent procedure to be followed in regard to examinations by a veterinary surgeon under sub-sects. (2) and (3). The animal or carcass having been examined and passed, the veterinary surgeon gives the owner a certificate of passing, and must also forthwith send a copy to the chief constable of the jurisdiction within which the examination is made. The principal certificate will be sent along with the animal or carcass, and the person selling the animal or carcass must immediately after the sale, and within seven days from the date of the certificate, send the same to the chief constable of the jurisdiction in which the sale took place.

Sub-section (8) deals with the case of a person tried before a sheriff and found guilty of obstructing an officer of the Act (but not a police officer) in the performance of his duty under this section. Where the sheriff is satisfied that the obstruction was with a view to preventing discovery of an offence under the section, or where the accused has been within twelve months previously convicted of such obstruction, he is liable to imprisonment for any term not exceeding one month, in lieu of the fine imposed by sect. 163. The only penalty for obstructing a police officer is the fine provided by sect. 163.

The Question of Compensation. It is part of the general scheme of the Public Health Act that where under the powers of the Act injury is done to an individual for the benefit of the general community the individual is to be indemnified. The general provision in regard to compensation is to be found in sect. 164 of the 1897 Act, which is in these terms: "Full compensation shall be made, out of any fund or assessment applicable to the purposes of this Act, to all persons sustaining any damage by reason of the exercise of any of the powers of this Act, except when otherwise specially provided; and in case of dispute, if the sum claimed do not exceed the sum of fifty pounds sterling, the same may be ascertained on a summary application by either party to the sheriff whose decision shall be final and not subject to review, unless when pronounced by the sheriff substitute, in which case it may be reviewed by the sheriff on appeal; and when the sum claimed exceeds fifty pounds sterling, such compensation shall be ascertained and disposed of by a sole arbiter appointed in manner set forth in sub-sect. (11) of sect. 145 of this Act."

Where meat is seized and is not condemned, or where it is afterwards proved that the meat was not unsound, the owner is entitled to compensation under this section, the case not being "otherwise specially provided for." If the meat is proved to be unsound, the owner's claim is barred because obviously his damage would be, primarily at any rate, attributable to his own fault and not to the exercise by the local authority of their powers under the Act. The corresponding section of the English Act of 1875 gives a right to compensation "in relation to any matter as to which

he (the person suffering the damage) is not himself in default" and the English law was well stated by Lord Fitzgerald in the case of *Brierley Hill Local Board v. Pearsall*, 9 App. Cases 595, where he laid down that the person claiming compensation must establish these propositions: (1) that he has sustained damage, (2) that such damage was occasioned by the exercise of the Act, and (3) that such damage arose in relation to some matter as to which he was not himself in default.

The Duty of the Local Authority. As to what is included in the "damage" sustained and for which compensation is to be made under this section, it has been laid down that the local authority must not pay solatium or damage for inconvenience, but must pay expenses to which the party is put (*Sheriff Cheyne in Cessford v. Commissioners of Burgh of Millport* (1899), 15 S.L. Review, p. 362). On this subject see also *Corporation of Glasgow v. Miller and others*, 1905, 13 S.L.T. 167, where it was held by Lord Ardwall in the Outer House that a person was entitled under the similar provisions of the Glasgow Corporation Sewage Act, 1896, to compensation for loss of profit and inconvenience during the period when a certain barricade erected by the Corporation continued in front of his shop, and for subsequent damage caused to the business by loss of custom, but not for damage to goods in the shop resulting from the operations.

The Public Authorities Protection Act, 1893, provides that all actions, prosecutions, or other proceedings against any person for any act done in pursuance or execution or intended execution of any Act of Parliament, &c., or in respect of any alleged neglect or default in the execution of any such Act, must be commenced within six months, but it is provided that if the statute in pursuance of which the act is done applies only to Scotland and itself contains a limitation of the time and other conditions for the action, prosecution, or proceeding, the Public Authorities Protection Act shall not apply. Section 166 of the Public Health Act contains a provision that all such actions must be brought within two months after the cause of action shall have arisen, and the Public Authorities Protection Act would not, therefore, apply to such cases. Further, it is thought that neither limitation applies to claims for compensation under sect. 164 of the Public Health Act. See *Corporation of Glasgow v. Miller, supra*, and *Delaney v. Metropolitan Board of Works* (1867), L.R., 3 C.P. 111; 31 J.P. 788, where it was held in an action on an award of compensation under a local Act that the time limit did not apply to such a case. Followed by Day, J., in *Moreton v. Alfreton* (unreported), May 6, 1898.

The protection of the Act does not apply even to action of damages against a local authority if the act complained of has been done without the scope of the statute.

Disputed Points as to "Damage." It has been held in England that the expense of resisting a condemnation order was part of the damage for which a party was entitled to compensation under the Act (*Bater v. Borough of Birkenhead*, L.R. (1893), 2 Q.B. 77). Similarly in *Walshaw*

v. *Borough of Brighouse*, L.R. (1899), 2 Q.B. 286, a carcass was seized and condemned and the owner prosecuted. The summons was dismissed on a technical ground, nothing being said about costs. On proceedings to recover compensation, it was held that the expenses of the owner of the carcass in the unsuccessful prosecution were still recoverable as part of the "damage" sustained. In this case the Court laid down that it is only where the inferior tribunal has in some way adjudicated on the costs that you cannot go outside of it in a further application.

In view of the provision in sect. 164 of the 1897 Act that if the sum claimed does not exceed £50 the proceedings are to be brought in the Sheriff Court with a right of appeal to the sheriff only, there are very few reported decisions on the point in Scotland.

In *Blyth v. Magistrates of Edinburgh* (1905), 13 S.L.T. 459, it was held in Edinburgh Sheriff Court that where a party successfully resisted a condemnation order he was entitled as compensation to the value of the articles seized and also the expense of his defence in the proceedings before the magistrates. This decision was followed by Sheriff-Substitute Guy and Sheriff Maconochie in the subsequent unreported case of *Thomson* before mentioned.

Prosecutions in Regard to Unsound Meat. It is not intended in this place to deal at length with the questions of criminal procedure arising in prosecutions in regard to unsound meat, as the same questions arise in regard to all prosecutions. It may, however, be useful to give a short outline of the procedure. This is now regulated in Scotland by the Summary Jurisdiction (Scotland) Act, 1908 (8 Ed. VII., cap. 65), which came into operation on January 1, 1909. This Act provides for the procedure in regard to (a) all summary proceedings which might prior to the passing of the Act, or which may under the provisions of that or any future Act, be tried in a summary manner; (b) any offence or the recovery of a penalty under any statute which does not exclude summary procedure; and (c) any order *ad factum præstandum* or other order of Court or warrant competent to a Court of Summary Jurisdiction. The Act has appended to it schedules of forms to be used in connection with the procedure thereunder.

When any animal or article has been seized by an inspector and found to be unsound, a petition is presented to the Court (which includes any sheriff, magistrate, or justice of the peace) in the form of Schedule F, praying for warrant to destroy the unsound animal or article, and the Court will, if satisfied, grant warrant as craved. Warrant to break open lock-fast places where necessary is implied in this warrant.

Where it is thereafter desired to take proceedings against the owner or other party in connection with the condemned animal or articles, a complaint is presented in the form of Schedule C. The complaint must be signed by the prosecutor or (where he is not the public prosecutor, it may be signed by his law agent (sect. 18)). The charge must be stated in accordance with the forms provided in Schedule C, and if this is done no further specification is to be required. The forms provided are,

however, only specimens, and in each case care should be taken to set out all the details necessary to constitute the contravention charged. If the charge is not such that, assuming the correctness of the facts, a contravention must in every case have taken place, the complaint will be irrelevant. Section 19 endeavours to reduce the number of technical points in connection with which it is possible to go wrong, as by making the statement that an act was done contrary to a statute or order imply a statement that the statute or order applied to the circumstances existing at the time and place of the offence, and sect. 75 very much reduces the grounds on which convictions may be quashed in the High Court on technical pleas.

The Procedure in Court. On the first calling of the case, if the accused is present, the charge is read over to him, and prior to pleading he may state objections to the relevancy or competency of the complaint or proceedings (sect. 29), and no such objections are to be allowed at any future diet unless with the leave of the Court on cause shown.

It is competent to amend the complaint at any time before the determination of the cause, unless the Court see just cause to the contrary (sect. 30).

If the accused pleads not guilty, evidence is led either at once or at a subsequent diet. If the accused fails to appear, warrant may be granted for his apprehension.

Expenses according to the Table of Fees in Schedule G may be awarded to or against a private prosecutor, but are not to be awarded to or against a public prosecutor.

All proceedings brought under the 1908 Act must, unless the statute or order contravened fix any other period, be brought within six months after the contravention or last date of contravention.

CHAPTER IX

COMPENSATION FOR CONDEMNED ANIMALS AND CARCASSES

Warranty and Insurance. The question of compensation has within most recent years and months assumed the proportion of a very important aspect of the whole subject of meat inspection in Great Britain, and it cannot be said that the controversy which has been, and still is, raging on the matter, has been settled with anything like finality. In Continental countries it is universally recognised that compensation in the case of condemned animals is not only a reasonable thing but a necessary proceeding, though at the same time the method of securing it varies greatly in different places. In some cases the State or Government undertakes the insurance ; in others it is undertaken by the purchasers of the cattle themselves, in other words, the butchers ; and in some few instances it is carried out at the instance of insurance companies. Whichever method be adopted the essential point for the success of the system is that insurance should be compulsory, and in our opinion in order to make the working of such a system successful, it should be in part at least paid by the person who, in the absence of insurance, would sustain the loss. Insurance undertaken in order to provide compensation for loss by diseased animals is on a somewhat different footing from most other kinds of risks which are covered in this way, inasmuch as the objects to be attained by the system are different. In most cases of insurance that object is to protect some *individual* from a pecuniary loss which he would otherwise sustain and for no other purpose. In the case, however, under notice, it is somewhat different because the argument in favour of compensating the owner is *partly*, at least, that it is *in the interests of the general public*. For that reason it is argued that the cost of the insurance should be borne by the State either wholly or partially, the latter in our opinion being the more equitable, as well as the method calculated best to achieve the desired end.

The State and Insurance. It is perfectly obvious that if insurance against condemnation were *universally* and *entirely* State-paid that the door would be open to the possibility of very great deception and of abuse on the part of unscrupulous dealers who would not hesitate to use fraudulent means in order to obtain it. We have said the question is being fought out in our own country, and it has been forced to a head by the endeavour on the part of the butchers to throw the responsibility on to the farmer or vendor, by the effort to compel him to give a warranty of soundness at the time of the sale. It seems probable that, finally,

the question will be settled by adopting a somewhat middle course in which part of the obligation will be shared by all parties.

In many Continental abattoirs the insured cattle are distinguished from the others by means of a metal label which is affixed to the ear, each company having its own distinctive label, and each label being numbered, a system which has the advantage of retaining the means of identification on the hide. The arguments in favour of compensation as well as some practical proposals for dealing with the difficulties which surround the question are thus stated by a Meat Expert and Mr. Thomas Parker, Principal Veterinary Officer to the Corporation of Newcastle-on-Tyne, whose account has been written for this work.

A Meat Expert on Compensation. Here is how the question of compensation strikes "A Meat Expert": *

"The present is likely to be a memorable period in the history of the relations between the farmer and the meat-purveyor. It was decreed some time ago that from May 3 the meat traders of the United Kingdom should refuse to buy home-fed cattle without a definite warranty from the farmers that the stock were free from disease and fit for the food of man. To the casual observer it may appear that some form of warranty should always have existed in connection with the meat-supply, but unhappily such has not been the case. The history of the matter is of interest not only to the consumer but to the other parties who contribute to our meat-supply, namely, the meat-purveyor and the farmer. There is also another party who is keenly interested at this moment, namely, the meat-importer. Disputes between farmers and meat-purveyors have taken place over diseased cattle from time immemorial, and arrangements for dealing with such matters have frequently been made, in a perfunctory way, in various countries so as to try to meet the difficulty, but these arrangements have invariably broken down. In Germany for example, it is recorded that this question was acute as far back as the thirteenth century, and in course of time it became necessary to establish what are to-day known as 'Freibanks' for the sale of 'measly' meat that had been seized.

"In Italy, France, and Belgium the same thing became necessary, and it is curious that the system so instituted should have lasted in these countries until the present day, and that in the United Kingdom there should be no such institutions. Freibanks are simply meat-shops in connection with abattoirs, in which meat taken from a partially diseased carcase may be sold either cooked or fresh. The significance of these shops lies, however, in the fact that they are still assumed to be the necessary complements of modern Continental abattoirs, thus acknowledging that partially diseased meat is bound to be passed for use under certain safeguards. In this country public authorities do not agree that even slightly diseased meat ought to be used for human food."

The Meat-purveyors' Point of View. "That leads us to the meat-purveyors' point of view at once. 'It is,' they say, 'unquestionable that

* *Glasgow Herald*, May 14, 1909.

our herds are affected with such diseases as tuberculosis, and while we pay for sound animals in open market we are compelled to surrender without compensation the carcasses if they should be found to be partially diseased.' The herds of the United Kingdom are apparently afflicted with tuberculosis to about 20 per cent. of their number, and there are those who compute the percentage as being even greater, and under the existing laws this insidious disease is not scheduled as contagious, and thus no compensation is provided by the State for animals that are confiscated. Foot-and-mouth disease is one of the diseases scheduled and, as is sometimes demonstrated in our midst, the most drastic measures are taken to eradicate any outbreak which may occur, and at the expense of the community. At the same time tuberculosis in the localised or generalised condition is sufficient to cause a carcase to be confiscated and the loss, except at centres where insurance schemes are in force is then entirely that of the meat-purveyor, who is the last owner. Naturally the confiscating arrangement has been resented by the meat-purveyors. There is no ready means of ascertaining whether a live animal offered for sale, either in the market-place or in the auction ring, is free from tuberculosis. There is a means, however, by which live-stock may be tested on the farm—*i.e.* by the test instituted by Professor Koch in 1890. The diagnosis of tuberculosis can be made with practically complete accuracy by the use of tuberculin, and it would be a comparatively easy matter in the diagnostic sense to eliminate the tuberculous animals from our herds. When, however, it is remembered that the total value of our cattle is about £112,000,000, and that cows are affected with tuberculosis to the extent of perhaps 40 per cent., and that the average over all is about 20 per cent., then the stupendous character of the sacrifices which would have to be made begin to appear. We are rightly proud of the fact that we send our pedigree stock to many lands. These animals, which frequently fetch very high prices, are generally sold subject to passing the tuberculin test. Many of them do not pass, and there is no law to compel these animals to be slaughtered. In place of that logical result they are sold into other herds, and in this way they may go on perpetuating disease.

"Conditions such as have been indicated would have been altered long ago had there been better organisation amongst the members of the meat trade. As it was, there was no national organisation up till 1888, and it was only in that year that the National Federation of Meat Traders' Associations was formed. Its early history was that of a struggle for existence, and not for many years after its inception did it begin to assume the strength it has now reached. At the present day its membership is about 14,000, and it is made up of about 148 different associations existing in various towns and centres throughout the country. For a good many years it has been a constant demand of this association that compensation should be paid by the Exchequer for cattle seized in the public interest, but without effect. Insurance schemes as between cattle salesmen and meat-purveyors have sprung into existence almost everywhere, and in a way have provided a slight palliative for the trouble.

But ordinary local insurance cannot be looked upon as anything better than a makeshift. In some districts farmers contribute in equal shares with the meat-purveyors towards the insurance of an animal, and an average arrangement of this kind is that each contributes 6*d.* per head of fat cattle, and this sum is placed to a general insurance fund from which compensation is paid for animals condemned. Obviously, however, such a scheme has its limits, and it seems to be generally agreed that no insurance should take place for an animal valued at less than £7 to £10, and that the premiums on cows should be about 2*s.* 6*d.* per head."

A Scheme for Mutual Insurance. "It was in 1903 that a scheme for mutual insurance was started in Edinburgh, which since then has worked remarkably well. The arrangement exists between the auctioneers and the meat-purveyors, who each contribute 6*d.* per head for bullocks and heifers sold. The fund thus created is used to provide compensation. The management of the scheme is in the hands of the meat-purveyors themselves, and with the most satisfactory results. This applies only to one auction mart in the city, other schemes of insurance being in existence at the different places. The question of identification is rendered very simple by the device of leaving the hide upon the carcase when examination shows the presence of disease. The hide having been previously marked or stamped can easily be recognised, and just compensation can then be paid. The carcase is appropriated for the benefit of the insurance fund, and whatever is realised therefrom is added to the fund. Such an insurance scheme only partially meets the present difficulty and contributes nothing to the eradication of the disease, nor does it in any way touch the farmer, who goes on just as before, breeding tuberculous cattle.

"It must be borne in mind that coincident with the rise of the Meat Traders' Federation there has also arisen a large corps of meat inspectors, who under the Public Health Acts determine whether meat exposed for sale is sound or diseased. These inspectors are likely to increase very much in the future, and thus the inspection will become more and more severe. Unfortunately there is a feeling at the present day that the inspection in some districts is much more rigid than in others, and that many veterinary officers are a law unto themselves. Whether that is so or not, it is quite obvious that uniformity of method is desirable, and that the same routine of inspection and standards of freedom from disease should be adopted throughout the country.

"Apart, however, from the methods of inspection, the general principle remains that the farmer who breeds or feeds cattle which are plainly tuberculous should not as a mere matter of course be allowed to 'run shares' with the butcher in endangering the public. If cattle are known to be diseased, why should they be allowed entrance to any market? Why should they not be killed and destroyed right away? The meat-purveyors put their case concisely in a resolution which sums up the whole situation, and reads:

"That inasmuch as your committee having done all possible to induce vendors of fat stock to warrant the same, but without

success owing to the determined and uncompromising attitude adopted and maintained throughout by the agriculturists, the only alternative in order to secure that fat stock purchased in bona fides shall be free from disease and fit for the food of man, as required by the Public Health Acts, 1875 and 1891, is to demand and require the vendor's express warranty, as pointed out by the Lord Chief Justice of England in his summing up of the test case *Newbury v. Perowne*; and your committee accordingly recommend that such warranty be enforced by the members of the affiliated associations on and after May 3 next.'

"What will happen in the future is, of course, a matter for conjecture, but it may not be out of place to suggest that a conflict between agriculturists and meat-purveyors will be disastrous to the best interests of both. The demand for home-killed meat is dwindling year by year, and, as is shown at Smithfield Markets, London, home-fed meat has during the last thirty years been gradually displaced by that from overseas, and year by year the balance in favour of the home producer grows less and less. The situation is indeed serious enough, and it is to be hoped that reasonable counsels will prevail, and, in the absence of heroic remedies on the part of the State, it is also to be hoped that farmers may in the meantime see that their best policy is to become parties to a mutual insurance scheme which will protect their own interests and also satisfy meat-purveyors."

FAT CATTLE AND THE QUESTION OF WARRANTY, INSURANCE, AND STATE COMPENSATION IN REGARD TO TUBERCULOSIS*

The slow but sure strides that some of the more progressive authorities in this country have made during recent years in official meat inspection are, without doubt, amongst the real causes of the prominence at the present time of the subject we are now about to consider. It is of more than ordinary importance to butchers, farmers, and cattle salesmen generally, and, in a wider sense, concerns not only landed proprietors but also the general public. An endeavour will be made to show that neither the farmer nor salesman nor butcher individually should be held responsible for the loss of animal carcasses destroyed for the benefit of the Public Health, nor yet should either the landed proprietor on whose estates and in whose property many of the diseased animals are produced—or the public generally, for whose benefit they are destroyed—bear an unfair share of the cost of such losses, but that to deal honestly with the whole subject, from every point of view, the combined efforts of all will be required. The subject discussed at the present time by many butchers' associations concerns simply the "warranty question," but it is intended here to deal with not only the warranty question but also a system of insurance followed by State aid, which perhaps might in the

* In the following pages by Mr. Parker, the opinions expressed are his own.

end be displaced by an absolute guarantee by the farmer against any loss on the part of the butcher.

Where the Trouble Lies. The whole trouble over this question is due to the prevalence amongst our herds of the disease known as tuberculosis. Large numbers of animals are continually being lost, and many carcasses are being destroyed daily owing to the presence of this disease, the latter loss being at the expense of the butcher, and in some cases means the entire destruction of his means of livelihood. When one considers that *probably from 15 to 20 per cent. of all the cattle in this country are in some degree affected with tuberculosis*, it requires no great stretch of imagination to believe that were an honest attempt made to rid the herds of this disease a direct benefit would eventually make itself felt by agriculturists. Moreover, butchers would then enter the live-stock markets with less fear of risk, and, finally, the Public Health would improve. Knowing that many dairy cows—after producing milk (sometimes tuberculous) for a number of years—are commonly sold for slaughter for human food, most particularly in those districts where no inspection exists, it is perhaps not out of place here to refer to a return issued by the L.G.B. and dated May 13, 1907: “showing (a) the names of the councils of boroughs and urban and rural districts who have made regulations under the Dairies, Cowsheds and Milkshops Order of 1885; and (b) the number of councils of each class who have *not* made any such regulations.”

The numbers of authorities who have made regulations are :

Councils of boroughs	290
Councils of urban districts other than boroughs	684
Councils of rural districts	493

The numbers of authorities who have *not* made regulations are :

Councils of boroughs	36
Councils of urban districts other than boroughs	126
Councils of rural districts	165

It is true, then, that 1467 authorities have made regulations, but in the great majority of cases the method of inspection is a complete farce. Again, when we are told that 327 authorities do not make any such regulations at all, we can only come to the conclusion that a little over 18 per cent. of the authorities in England and Wales are sound asleep.

The Loss from Tuberculosis. In the early part of the year 1904 a Bill—to provide for the payment of compensation to the owners of carcasses of animals condemned after slaughter and destroyed by order of a magistrate on account of tuberculosis—was presented by Mr. Price and supported by Mr. Field and others. It was ordered by the House of Commons to be printed, but went no further. It could hardly be expected that such a Bill would pass unless something were being done at the same time to eliminate the disease from our herds besides instituting a uniform system and standard of meat inspection.

If the loss from tuberculosis, instead of being what might be termed

a gradual process, were to confine itself to one attack in a particular county—say once every five years without any warning, resulting in the exact loss as at present occurring over a period of five years, what would be the result? Three hundred thousand people, or a population equal to that of a city like Newcastle-on-Tyne would be wiped out. Again, just imagine the number of carcasses that are being condemned and destroyed all over the country, week after week, for a period of five years—to be destroyed in one or two big cities at the expense of the butcher, and that to take place within a month. Again, one might ask what would be the result? Besides wiping out a large population, all the butchering businesses of one or two big cities would be absolutely ruined. One may safely assert that under such circumstances a big battle would be waged against the disease.

Now, it might well be asked, why cannot a battle be waged against the disease as it at present presents itself? Some people would say that it would cost too much. At this stage we wish to point out that we do not associate ourselves with the views of those people who would advocate testing every bovine for tuberculosis, and then destroy every animal that reacted and was shown by such test to be diseased—no matter whether they exhibited outward symptoms or not.

Butchers and a Warranty. Were farmers properly educated by means of proper instructions enforced by legislative measures and for a period of years assisted by the tuberculin test, provided that were under proper supervision, the branding of disease-free animals, isolation of the diseased, better housing, together with temporary insurance and State compensation in the case of certain animals, the disease could be reduced and a more wholesome meat- (and milk-) supply obtained more quickly than most people imagine.

Writing on the "Meat Warranty Question" in the *Morning Post* of April 16, 1909, an agricultural correspondent states: "It may be pertinent to the great issues involved to inquire what benefit the butcher would derive from a warranty. He would not even then be safe from prosecution, for the law holds that the exposé of bad meat is the individual who will be held responsible." Now, as a matter of fact, the very class of butchers who are at the present moment agitating for a "warranty with the cattle they purchase" are the very persons who are particularly careful not to expose for sale such diseased carcasses. The benefit derived from a warranty would be a very real one, namely, to the extent of the value of the carcasses condemned, and by way of illustrating how little prosecutions have to do with the question of warranty, one may further point out that during the past two years the writer had to condemn, on account of tuberculosis, over a hundred carcasses belonging to members of the Newcastle, Gateshead and District Butchers' Cattle Insurance Society, and in no single case was it necessary for a prosecution to follow. On many cases the butchers themselves hurriedly reported (by telephone or otherwise) the existence of disease and offered to surrender the carcass even before one had had time to make an official inspection—to determine

whether or not the case was certainly tuberculous, or whether it was one that required to be either wholly or partly condemned for some other disease than tuberculosis. In some cases carcasses have been reported and surrendered as tuberculous and unfit, and on examination by the veterinary officer have been found to be free from disease and passed as fit, hence another necessity for uniformity of inspection. Such action on the part of butchers is extremely valuable, particularly in large cities where slaughterhouses are scattered over a wide area.

Offences on the Farm. Again, farmers have often done practically the same by sending in cattle to be slaughtered and subjected to official veterinary inspection before being offered for sale. But during the same period the writer has been compelled to prosecute, resulting in the infliction of heavy fines and imprisonment. The persons prosecuted were farmers who had cattle slaughtered owing to illness on the farm, in some cases stripped to conceal evidence of disease and the internal organs buried, and then the carcass would be sent in to run the blockade. In other cases unscrupulous butchers would purchase a diseased animal from an unscrupulous farmer, cart the animal in at night-time and make the same attempt. Such people, for whom the law was strictly intended, *do not look for a warranty*, are not members of butchers' associations, and do not insure their cattle. And why? Because the associations will not (in Newcastle-on-Tyne) have anything to do with such cattle or their owners.

The Stock-Owners' Responsibility. For a long time butchers have been in the habit of purchasing their cattle at the markets and auction marts, and sometimes directly from the farm, and whenever an animal was found on slaughter to be diseased and unfit for food, had either to surrender the carcass or have it confiscated, and, at the same time, as already stated, bear the loss.

The writer has condemned carcasses of good quality bullocks and heifers badly affected with tuberculosis, which only an hour or two before were purchased in the open cattle-market and appeared healthy to buyer and seller. The unhappy butcher, already having borne a serious loss, has to hurry back into the market to purchase another beast knowing well that he is not certain to get a sound one. This will illustrate what happens owing to the impossibility of the butcher (or any one else) when he is purchasing apparently healthy prime bullocks and heifers, to find out, by any means whatever, whether the beef of such animals will be absolutely free from disease or extensively diseased. Going back a number of years one could at that time quite readily understand the farmer refusing to warrant any cattle against the disease, simply because no means were obtainable for finding out whether the animals were free from disease or not, particularly when they exhibited no apparent symptoms. To-day the question stands in rather a different light. Stock-owners have a means at their disposal of finding out which are diseased and which are not, and unless they make use of those means they are bound to know that they are running the risk of selling diseased animals.

At this stage careful attention should be paid to the well-known fact that cattle often change hands several times just prior to reaching the butcher, therefore a warranty could only be expected to be given with cattle by the person selling directly to the butcher—to be slaughtered within, say, ten days or a fortnight. Again, the question might here be asked: In whose possession was the animal when it contracted the disease? It will thus be seen that it would be unjust to expect the dealer to guarantee against disease to the butcher, cattle which he perhaps purchased the day before from, say, a farmer, auction mart, or another dealer. The butcher cannot compel the farmer or dealer to give a warranty, but he can refuse to buy. If he purchases without a warranty he has no remedy. Some of the smaller tradesmen, rather than run any risk whatever purchase ready-dressed carcasses, and it is no secret that this branch of the meat trade is making very rapid strides indeed.

A Test Case. On May 8, 1909, a very important case was decided at the High Court, King's Bench Division, before the Lord Chief Justice. It was looked upon as a test case by the National Federation of Meat Traders (Incorporated), for the purpose of deciding the much-debated point as to whether the seller or the buyer is to bear the loss of an animal bought in the open market, and found on slaughter to be suffering from tuberculosis. The case was that of *Newbury v. Perowne*. The action was to recover cost in respect of an implied warranty for the sale of a fat bullock bought at Islington Cattle Market, but the defendant denied that the animal was sold with that warranty. A large amount of evidence followed, both sides employing veterinary experts of the highest standing. In summing up, his Lordship reviewed the evidence, first remarking that the case was of importance because of the question it raised as to whether a butcher was entitled to throw the blame and responsibility of discovering whether an animal was suffering from disease on to the farmer. Of course, a butcher could protect himself by asking for a warranty, though it might then be that higher prices would be asked.

Finally his Lordship said—The points for the jury to decide were:

(1) Did the plaintiff really rely upon the defendant's skill and judgment? And

(2) Could the defendant, by reason of his skill and judgment, ascertain whether the animal was tuberculous?

After a brief consultation, and without leaving the box, the jury gave the verdict by answering both questions in the negative.

Looking at the subject from beginning to end, it may be clearly laid down that the problem can only be solved by removing the cause of its existence, namely, the disease of cattle known as tuberculosis.

Butchers' System of Insurance. For a number of years butchers purchasing in the open markets have had to resort to a method of protection by means of a system of insurance, and perhaps the best example of the latter to which the writer can refer is that of the Newcastle, Gateshead and District Butchers' Association. It is believed that this society was the first to begin such a system of protection. It was in the year

1892 when, for the benefit of its members, it commenced a system of insuring cattle against disease. At that time, not only bullocks and heifers but also cows were insured at a charge of 1s. per head—payable on the day of purchasing the cattle. Whenever an animal carcase was condemned the owner received two-thirds value as compensation. At the end of each year, the Society paid back to its members a dividend with the amount left over after paying compensation claims, &c. During the first seven years a premium of 1s. per head of cows, heifers and bullocks paid the cost of claims and allowed a dividend on the premiums of from 66 to 91 $\frac{7}{8}$ per cent.

During the next eight years cows were insured separately, and not only the amount of premiums payable per head but also the amount surcharged per head—to cover the cost of insuring—had to be increased to a remarkable extent—namely, from a total of 2s. 6d. to 9s. 3d., when insuring cows was discarded altogether.

During the whole sixteen years, 1s. per head premium on heifers and bullocks has covered the cost of claims, but owing to increase of condemnations, the dividends on the premiums paid, after paying certain expenses, have fallen from 91 $\frac{7}{8}$ down to 16 $\frac{3}{4}$.

From the year 1892 to June 1899 29 carcasses were condemned, thus averaging a little more than 4 carcasses per annum, whilst during that same period of 7 years no fewer than 42,151 head of cattle were insured.

During the latter half of the year 1899 cows were insured at 1s. 6d. per head, whilst the premium for heifers and bullocks remained at 1s. At the end of the six months it was necessary to charge another 1s. per head on the cows to pay for compensation claims.

How the Insurance Scheme has Worked. From the year 1900 to the end of the year 1906, 115,318 bullocks and heifers were insured at 1s. per head, and 159 carcasses or an average of a little over 22 per annum were condemned on which compensation claims were paid. During the same period 1693 cows were insured and 49 were condemned.

In reference to the cows over that period. In the first year 2s. per head was charged as premium and it was necessary to make a surcharge of 3s. 6d. per head to cover the claims. In the second year 2s. and a surcharge of 4s. 6d.; in the third year 2s. 6d. and a surcharge of 3s.; in the fourth year 5s., which left a balance; in the fifth year 5s. and a surcharge of 2s.; in the sixth year 5s. and a surcharge of 1s. 6d.; in the seventh year (1906) a charge of 5s. per head left a balance of about £4 after paying compensation claims on the cow carcasses. During the year 1907, 16,683 bullocks and heifers were insured at 1s. per head and 43 carcasses were condemned, and after paying a sum of £441 15s. 4d. in respect of claims of two-thirds value for each carcase condemned, and certain expenses, the Association paid back to its members a dividend of 41 $\frac{2}{3}$ per cent. on the premiums paid.

During the same year 51 cows were insured, many being not slaughtered within the city. Compensation claims of £23 12s. were paid in respect of two carcasses condemned in the city. Five shillings per head on the 51 cows

was charged for insurance, and to pay the claims it was necessary to make a surcharge of 4s. 3*d.* per head. Therefore, although these cows were not all slaughtered within the city, it required 9s. 3*d.* per head as insurance to cover the cost of those condemned.

During the year 1908, 14,419 bullocks and heifers were insured at 1s. per head. Fifty-three carcasses were condemned, and after paying £555 5s. 10*d.* in respect of compensation claims out of the premiums received, the Association was then only able to pay back a maximum dividend of 16 $\frac{2}{3}$ per cent. on the premiums. At the end of the year 1907 the Association very wisely abolished the idea of insuring cows, and since then up to the present time no other than bullocks and heifers have been insured.

It will thus be seen that during the year 1908 a sum, equal to £113 10s. 6*d.* *more* than the year previous, was paid on account of compensation claims, notwithstanding the fact that 2264 fewer bullocks and heifers were insured.

Therefore, at the end of the year 1908 this Society paid back to its members a dividend of twopence in the shilling, which left a small balance to the Society with which to defray working expenses, so that in reality the butchers paid tenpence per head of cattle insured and had to bear the loss of a third of each carcass confiscated or surrendered. And besides receiving two-thirds value from the Society they also got the amount obtained for the hide, and market value of tallow obtained from the carcass.

Arrangement between Butchers and Farmers. On paper the loss would seem to finish here, but in reality that is not so, for the butcher is invariably put to the considerable inconvenience and annoyance of having, as already pointed out, to hurriedly purchase another carcass, which, in most cases, will cost him more. Such, then, is the method that was adopted by the butchers in the [Newcastle-on-Tyne district until the beginning of the year 1909—in order to protect themselves somewhat. On November 16, 1908, the writer, in a paper read before a large meeting of farmers, salesmen, cattle-dealers and butchers in Newcastle-on-Tyne, suggested that the farmers ought to pay equally with the butchers towards the insurance funds in order that the butchers might be compensated to the full value of the carcass condemned, instead of only two-thirds. After several meetings of butchers and farmers, an arrangement was arrived at whereby butchers were to pay 1s. and farmers 6*d.* per head on heifers and bullocks, to be slaughtered within ten days after purchase. This is now an accomplished fact and the system is working very well, and the butcher now suffers practically no loss. But this is not enough. The farmers ought to pay quite as much as the butcher, and in order to prevent the encouragement in the production of the disease the State should pay its portion and see, through legislation for the disease, that such a system will not necessarily be a permanent one.

Auction Mart Insurance. In March 1907 the Gateshead Auction Mart, at the request of several of their customers, arranged to guarantee, under

certain conditions, local butchers against loss on account of carcasses of cattle being found on slaughter, within ten days after purchase, to be affected with tuberculosis or other internal disease and condemned by the Local Authority as unfit for food.

For the purpose of identification the hide had to be left (attached to the skull of the carcase) at the place where the animal was slaughtered. Only animals purchased for not less than £10 were insured, and 10s. was deducted from each claim by the Company for inspection fees. The benefit of this guarantee extended only to those cattle slaughtered within a radius of 15 miles from the Central Railway Station, Newcastle-on-Tyne. The purchasers were charged *a fee on each head of cattle guaranteed*, namely :

Bullocks or heifers	1s. 0d. per head
Cows	5s. 0d. „
Bulls with not more than 4 broad teeth	1s. 0d. „
Older bulls	2s. 6d. „

After a trial of seven and a half months this firm found that they had suffered a considerable loss, and after considering the matter they decided therefore to abandon the scheme.

About a year and a half later, that is to say, at the beginning of March 1909, at about the time when the Newcastle and District Butchers' Association commenced the system of mutual insurance, the Gateshead Auction Mart Company also decided to make a similar attempt.

They decided to guarantee, under certain conditions, all cattle sold through their mart. Briefly the conditions were as follow :

Only cattle sold for not less than £10 per head would be included in the scheme.

Only the original purchaser from or through the Company is entitled to the benefit of the guarantee, and he is not permitted to transfer such benefit to any other person who may purchase the guaranteed animal from him ; and all animals, in respect of which compensation is claimed, must be slaughtered within ten days from and including the day of sale and the Company's ticket must be left attached to the hide.

The consignor (vendor, farmer or dealer) pays to the Company in respect of :

Each bull, bullock or heifer sold by the company for £10 and upwards the sum of 6d. per head.

Each cow sold by the Company for £10 and upwards the sum of 2s. 6d. per head ; and each purchaser of one or more of these animals *is guaranteed against loss to the following extent*, namely :

In the event of the guaranteed animal being on slaughter found to be affected with tuberculosis or other internal disease and the carcase wholly or partly condemned as unfit for human food by the official inspector (or where no such official exists, by the certificate of a member of the Royal College of Veterinary Surgeons), the purchaser receives from

the Company one-half of the purchase price of the animal, or half the value of the portion of the carcase condemned (provided that each portion is not less than 10s. in value), as the case may be.

The Butcher's Guarantee Against Loss. When the purchaser happens to be a butcher, and he wishes to have *the whole carcase insured* against loss, he may avail himself of that opportunity *by paying to the company* (auctioneers) at the time of purchase *the following fees* :

For every bull, bullock or heifer purchased for £10 and upwards a sum of 6d. per head.

For every cow purchased for £10 and upwards a sum of 2s. 6d. per head.

Therefore, when the butcher or other person purchases cattle of not less than £10 value they are guaranteed against loss to the extent of one-half value of carcase or any part condemned, and when the butcher pays his insurance fees to the auctioneers at the time of purchase he has the remaining half of the carcase or any portion of it guaranteed against loss to the value of seven-eighths. In every case the Company only pays on the value of carcasses or portions of carcasses condemned, and in all cases the hides, offal, &c., remain the property of the purchasers of the live animals.

By such a scheme, then, bulls, bullocks and heifers are fully insured (guaranteed by paying, but not a warranty) at a cost of 1s. per head, and cows at 5s. per head.

An interesting and important question may now be asked, namely : "How does such a scheme work ?"

In order to answer that question figures are given in tabular form on page 1344 showing the result of a trial extending from March 8 to August 31, 1909.

A Paying Scheme for the Auctioneers. It will be seen that such a scheme must pay the auctioneers very well, *e.g.* the fees received for insuring bulls, bullocks and heifers amount to £64 13s. 6d., and the amount of compensation paid in respect of condemnations was the sum of £35 12s. 6d., leaving a profit practically of £29 1s.

Again, the fees received for insuring cows amounted to £125 17s. 6d., and the amount of compensation paid was £119 10s., leaving a profit of £6 7s. 6d. Therefore, on the whole scheme the total profit was practically £35 8s. 6d. But supposing we consider the profits and loss regarding only those animals belonging to the scheme that were slaughtered in Newcastle-on-Tyne, and, therefore, in the majority of cases, subjected to inspection, what do we find ? Of the 510 bulls, bullocks and heifers slaughtered in Newcastle, the sum paid in fees for insurance amounted to £18 7s., and the sum paid for compensation in respect of condemnation claims amounted to £35 12s. 6d., therefore showing a loss of £17 5s. 6d. And the sum paid in fees for insuring the 246 cows amounted to £57 10s. and in respect of the 8 cows condemned in Newcastle-on-Tyne £112 was paid as compensation, thus showing a loss of £54 10s. Therefore, it will be noticed that strictly the total loss on the animals

Table showing the number of bulls, bullocks, heifers and cows, sold, insured, slaughtered and condemned or otherwise subject to the scheme already described. The figures showing amount of cost for the insurance are correct. The figures given as an example of the probable amount of compensation paid are arrived at by estimating the value of each carcase at £15, or exactly half as much again as the minimum cost of animals insured under the scheme.

		BULLS, BULLOCKS, AND HEIFERS.				Cows.							
		Number.		Cost of insuring.		Approx. amount of compensation paid.		Number.		Cost of insuring.		Approx. amount of compensation paid.	
				£ s. d.		£ s. d.				£ s. d.		£ s. d.	
Insured to half value . . .		1347		33 13 6		7 10 0		429		53 12 6		7 10 0	
Wholly insured remaining half to $\frac{7}{8}$ value . .		620		31 0 0		28 2 6		289		72 5 0		112 0 0	
Total sold and insured and slaughtered .		1967		64 13 6		35 12 6		718		125 17 6		119 10 0	
In Newcastle-on-Tyne	Slaughtered	Half insured	286	510	18 7 0	35 12 6	Half insured	32	246	57 10 0	112 0 0		
		Wholly insured	224				Wholly insured	214					
	Condemned	Half insured	1	3	—	35 12 6	Half insured	—	8	—	112 0 0		
		Wholly insured	2				Wholly insured	8					
Slaughtered outside of Newcastle-on-Tyne		1457		46 6 6		Nil		472		68 7 6		7 10 0	
Condemned as unfit for food outside Newcastle-on-Tyne		Nil		—		Nil		Half insured		1 0 2 6		7 10 0	

slaughtered within the city of Newcastle-on-Tyne amounted to practically £71 15s. 6d.

Now, let us for a moment or two strictly confine ourselves to the question of insurance fees received and compensation claims paid in respect of those animals included in this scheme but which were slaughtered outside the city of Newcastle-on-Tyne—in surrounding districts where practically *no inspection whatever exists*—and we shall find that £46 6s. 6d. was paid for insuring 1457 bulls, bullocks and heifers, and that as none of them were condemned as unfit, no compensation claims had to be paid.

Again, £68 7s. 6d. was paid for insuring 472 cows, and of this number one carcase was surrendered, but as it was only half insured £7 10s. only had to be paid as compensation. Therefore, although 1929 bulls, bullocks, heifers and cows were insured to the farmers and butchers for a sum of £114 14s. (and slaughtered outside the area of inspection), only £7 10s. of that amount had to be paid back as compensation. While the present condition of affairs exists in this country, namely the absence of a system of meat inspection in the majority of small towns and country districts, so long will one find it possible for large profits to be obtained in some districts through insurance, whilst in others, in close proximity, large losses will take place and have to be made good. Further, in many districts, where no insurance scheme has been established, butchers will have to continue to pay heavily for their losses.

Where Farmers Give a Warranty. During the early part of 1909, in certain parts of the kingdom farmers commenced giving a warranty (so-called) with the cattle they sold; but what does this so-called warranty amount to? The farmers selling at particular auction marts pay a small premium per head on cattle they sell through the auction marts. The auction marts in turn—if fortunate enough—get an insurance company to insure all the cattle they sell, at a small premium per head. Some auction marts—independent of the farmers—after having all their cattle insured by a company, also charge the purchasers a small amount per head and give the so-called warranty. These methods of insuring and guaranteeing cattle are far from being uniform. Further, the insurance companies are very particular to select districts where practically no meat inspection whatever exists, and so long as they do that, so long will the concern be a paying one. Moreover, whilst in some districts no inspection exists although diseased carcasses are plentiful, but no surrenders are being made although they may be insured, in those same districts we may expect the purchasers of cows or questionable bullocks and heifers—through ignorance or otherwise—to continue to feed an unsuspecting public with diseased beef.

Should there be Legislation? In order to consider whether the whole subject demands legislation, a careful survey of every one's interests will be necessary.

The first question that arises is this:

Is there any reason why butchers should be expected to adopt any method whatever as a means of protecting themselves against cattle

turning out to be diseased, particularly having regard to the fact that they are purchasing prime fat bullocks and heifers exposed for sale in the open markets, and apparently healthy? Providing these animals are purchased for the purpose of immediate slaughter, and exposure for sale for human food, the answer should be absolutely *no*!

Again, knowing very well that farmers and stock-breeders, no matter how experienced they may be, in the great majority of cases are not able to say which animal is diseased and which is not, and knowing also that the majority of fat bullocks and heifers are free from disease—is there any reason why they should be expected to warrant their animals absolutely free from disease? Were they able by ordinary means to pick out the diseased from the healthy, then we should answer the question by saying “yes”; but as the diseased animals can only be isolated from the healthy ones by means of the application to the whole of his herd of a particular test, which is a veterinary operation having to be very carefully applied, and which would certainly increase the cost of the finished article, we are, therefore, of opinion that the answer to this question is also in the negative. Again, if the farmers gave a warranty, we should find them sending their cattle to be sold in those districts where no inspection whatever existed, and they, themselves, would thus be subjected to unequal and unfair risks as the butchers are at present.

Should the Public Pay? According to these statements it would appear that we are inclined to remove all responsibility from the farmers and butchers, but that is not so, as will be shown further on.

Then there is another question which arises, and it is this: Would it be just to call upon the public to assist the farmer in his business by contributing to, or paying for, the guarantee against all losses through their cattle being found, on slaughter, to be diseased and condemned as unfit for food, and thus, consequently, remove from the butcher all risk of loss through diseased beef? We can only answer that question in this way.

Until such time as legislative measures are adopted which would compel farmers and farm-building owners or landlords to carry out certain prescribed hygienic principles—State-aided or otherwise—likely to eliminate the disease from their herds, and thus enable them to eventually place on the market healthy bullocks and heifers—we are of opinion that the public have a perfect right to object to pay, and at the same time they have a perfect right to expect when they are purchasing meat in the shops to get it free from disease.

Now, if we were all agreed that the butcher has a perfect right to demand disease-free beasts; that the farmer can conscientiously object to give any warranty; and that the State has a right to remain idle and look on, we come back to the beginning and ask what should be done?

It seems almost useless, as matters at present stand regarding this disease, for the butchers on the one hand, and the farmers on the other, to be collecting together all their forces in order to continue hostilities which will certainly not remove the cause. Bearing in mind once more

that the detection of the disease in our live animals is not an everyday duty of the layman, it will be obvious that to be successful in finding a proper remedy, time, combined action, and expense will be necessary. It may be asked—what shall we do, and when and how shall we do it?

A Start towards Solution. In order to make a true start towards a proper solution of this great problem, we would suggest that the whole of the farmers' and butchers' associations of this country should immediately join forces, and, in the first place, protect themselves, for the time being, against losses, and then work absolutely united. When we speak of farmers here, we do not necessarily include agriculturists who are landed proprietors, because part of the campaign to solve this problem will necessarily ask for a direct attack to be made upon badly constructed and unhealthy cattle-houses, and unfortunately many of those people who would have to consider the structure of legislation would at the same time keep an eye upon their own pockets. It is against these would-be legislators that combination and strength will be necessary, and the sooner the tenant farmers and butchers of this country grasp the situation, the better it will be for business and public health. Let them utilise every possible source of influence and evidence, and go to the Government fully equipped, and press for reasonable assistance, so that not only would agriculturists and butchers be protected, but also the public health.

Suggested Methods. To filter the whole question down, the methods we would suggest may be brought under the following heads, namely :

(i) A system of insurance against loss, payable equally by farmers and butchers, and adopted at once.

(ii) The farmers' and butchers' associations all over the country having combined, should press the Government to contribute towards the mutual insurance, and make an order to that effect, say : " Mutual Insurance Compensation of Cattle Order."

(iii) The Government to issue another order providing for : The scheduling of tuberculosis as a contagious disease ; the testing of all cattle throughout the country ; better hygienic conditions of housing, &c. ; branding of all disease-free animals ; destruction of all clinically diseased cattle with compensation ; isolation of the diseased from the healthy ; Government warranty of all the branded cattle, and uniform inspection.

(iv) Order removing responsibility of public as to paying for the testing and putting that responsibility upon the farmer. The State to brand the tested cattle free of charge, and the farmers to warrant all cattle not bearing the brand.

These Methods Analysed. (i) A system of insurance against loss, payable equally by the farmer and butcher, and adopted at once.

In the first place it should be clearly understood that throughout this chapter the question of insurance or warranty is strictly confined to three parties, namely :

(1) The butcher who purchases cattle to slaughter within, say, ten days or a fortnight.

(2) The farmer, dealer or other person from whom the butcher purchases such cattle.

(3) The State.

In order to realise the amount necessary to cover the cost of insuring cattle against the disease, it is necessary to take into account :

(a) The classes of animals insured.

(b) The number of animals slaughtered.

(c) The number affected with disease.

(d) The number of carcasses condemned.

(e) The disposal of condemned carcasses, tallow, &c.

Three Classes of Food Animals. For convenience the food animals may be classed as :

(1) Cows and heifers in milk and in calf.

(2) Other cattle one year and upwards.

(3) All bovines under one year old.

Many cows that have been used for milking purposes, and perhaps have had two or three calves or more, are fattened off and sent to the market to be sold. Some are sold owing to their being failures as milk producers, others are disposed of owing to accidents or disease having occurred in one or other of the teats or glands, and thus rendering them useless as milkers. In this class of animal the risk of their becoming tuberculous is always greater than in bullocks and heifers, owing to their being exposed to greater risks of infection whilst housed together for varying periods in cowsheds, which are too often insanitary. In proof of what has just been stated, we may take the following examples :

In the five years 1892-1896, there were slaughtered at the Tranmore abattoirs, Birkenhead, 3098 British and Irish cattle. Of these 71 carcasses were condemned for tuberculosis, no less than 64 of them being cows. Between February 15, 1895, and March 17, 1897, 48 animals were condemned on account of tuberculosis in the Carlisle public slaughterhouse ; of these, 41 were cows and heifers. In Glasgow, between October 1, 1895, and October 1, 1897, 1286 carcasses were condemned for the presence of tuberculosis ; of these 1260 were cows.

The Figures for Germany. In Germany the figures vary between 37 per cent. and 97 per cent., depending on localities. The reports of the Prussian slaughterhouses for 1899 show 16 per cent. of all slaughtered cattle to be tuberculous.

In Berlin, during the year 1899, 153,437 animals were slaughtered, and 19.87 per cent. were found tuberculous.

Of 48,172 cows slaughtered in Saxony during 1899, over 35 per cent. were tuberculous. The older the animals the higher the figures. Thus, of 14,684 cows over four years old slaughtered in Berlin, 14,556 or 99 per cent. were tuberculous. The lesions, of course, were in some cases very trifling, only the bronchial glands being affected.

The Disease in Great Britain. Again, in the beginning of last year, a large number of dairy cows were slaughtered in Edinburgh, owing to an outbreak of foot and mouth disease. The writer wrote to Professor Dewar, Royal Veterinary College, Edinburgh, asking him if the opportunity was being taken of examining them after slaughter to find out the percentage affected with tuberculosis. He very kindly replied and supplied the results. There were nearly 250 cows slaughtered. Of the whole, almost exactly 5 per cent. were found affected more or less. He also stated that the percentage would have been less had it not been for the last herd, which was killed out as a precautionary measure. In the latter herd, over 25 per cent. were found affected with tuberculosis.

According to recently published figures, it is estimated that about 10 per cent. of milch cows in the United States are tuberculous.

In Great Britain, at the present time, there are about 2,763,780 cows and heifers in milk and in calf. Were these animals carefully tested, it would be found that somewhere about 30 per cent. are affected more or less with the disease. Were the same animals slaughtered and subjected to the everyday methods of meat inspection, the number of carcasses that would be condemned would represent a percentage considerably less than thirty. Suppose we take the average life of this class of animal as six years, then the number likely to be slaughtered each year would be 460,630. In cities like Newcastle-on-Tyne where inspection consists of visiting slaughterhouses scattered over a wide area, and where, consequently, many carcasses are never seen at all, it would be difficult to estimate exactly the percentage of cow carcasses that would be condemned as unfit, but as an example we may take the result of the examination of 500 cows by the late Mr. J. King, M.R.C.V.S., of Islington.

Of these 500 cow carcasses, 35, or a percentage of 7, were totally destroyed. Assuming, then, that 7 per cent. of carcasses of the cows and heifers were destroyed as totally unfit, it would mean that out of the 460,630 cows and heifers in milk and in calf 32,244 would be destroyed. And, averaging these at £15 per head, the total cost of insuring the whole carcass would amount to £483,660, or practically £1 per head.

Turning our attention now to the other class, namely, other cattle one year old and upwards, we find that the number in Great Britain at the present time is 2,787,171. Taking their average life at two and a half years, one may estimate that 1,114,868 animals of this class would be slaughtered annually. One may look upon this class of animal as bullocks and heifers.

In this class of cattle the percentage found diseased of those under one year old is very small—probably less than 1 per cent., and the percentage found diseased may be said to rise steadily with the age.

Newcastle's Good Record. During the year 1908, 14,419 bullocks and heifers were insured in Newcastle, and 53 compensation claims were paid.

In Newcastle between 350 and 400 bullocks and heifers are slaughtered weekly. Of these about 230 are insured weekly. Therefore, out of

the 14,419 bullocks and heifers insured by the Newcastle, Gateshead and District Butchers' Cattle Insurance Society, 12,000 were slaughtered in Newcastle, and of the 53 compensation claims that were paid, all were in respect of carcasses condemned and destroyed in Newcastle on account of tuberculosis. And this is just another way of explaining the fact—remarkable as it may appear—that out of the 14,419 bullocks and heifers insured in Newcastle, about 2500 of them were slaughtered just outside of Newcastle in surrounding districts, and not one of the carcasses was reported as diseased. It will thus be seen that out of an average of 12,000 bullocks and heifers slaughtered in Newcastle-on-Tyne, about 1 carcase in every 226, is destroyed as unfit for food owing to tuberculosis.

The Cost of Insurance. In London, the late Mr. King, M.R.C.V.S., destroyed as unfit an average of $3\frac{3}{50}$ out of every 226 carcasses of bulls, bullocks and heifers, or 1 carcase out of every 60. If we take Mr. King's percentage of total destructions on account of tuberculosis as an example of the number of bullock and heifer carcasses that would probably be destroyed in this country, were regular and systematic inspection carried out on all the carcasses, the cost of insuring the 1,114,868 bullocks and heifers slaughtered annually in Great Britain—so that £16 per head could be paid as compensation on those condemned and destroyed—would amount to £297,312, or 5s. 4d. per head.

Again, if we take the number of carcasses destroyed out of the total of bullocks and heifers slaughtered in Newcastle-on-Tyne as an example, namely 1 in 226, the cost would be as follows: Of the 1,114,868 bullocks and heifers slaughtered annually in Great Britain, 4933 carcasses would be condemned as unfit. Insuring these so that £16 per head could be paid would cost a sum of £78,928—which amount works out at about 1s. $4\frac{1}{2}$ d. each animal insured, which would practically mean 8d. or 9d. each for farmer and butcher to pay.

Easy Protection for Farmers and Butchers. If one takes into consideration the fact that in a great many cities, towns and country districts in this country, practically little or no meat inspection takes place at all, one will then probably be of the opinion that one carcase destroyed out of every 226 would probably be considered above the average. On these grounds it is submitted that the farmers and butchers may, if they choose, protect themselves for the time being against all risk without feeling the burden heavily. Taking then into account that £16 per head is perhaps not far short of the average price, and the fact that they would also receive into their fund the amount realised for the hide and market value of tallow obtained from each condemned carcase, it might be fairly estimated that 8d. or 9d. per head of cattle (heifers and bullocks) paid equally by butchers and farmers would amply pay for the loss sustained, and also incidental expenses necessary to carry on the system.

The Duty of the Government. We now come to consider the second heading, namely:

(ii) The farmers' and butchers' associations all over the country having combined, should press the Government to contribute towards

the mutual insurance and make an order to that effect, say: "Mutual Insurance Compensation of Cattle Order."

Were the butchers' and farmers' associations to combine and establish this system of insurance as a protection to commence with, they could then hold meetings in various localities, and having put the machinery of the scheme in proper working order, they could then go combined to the Government and urge upon the latter to contribute a proper share—say, one-third or one-half of the cost of insurance against the disease on behalf of the general public. This they have a perfect right to ask for immediately, on the following grounds alone, namely:

(1) The disease cannot be detected in the living animal in the great majority of cases by ordinary methods.

(2) Some of the best-looking fat young heifers and bullocks are found on slaughter to be some of the worst cases.

(3) The disease has been prevalent since time immemorial.

(4) No attempt has been made to eliminate the disease from our herds or to improve the deplorable conditions under which they are housed.

(5) The destruction of carcasses is in the interests of public health, *i.e.*, for a national benefit.

(6) The total absence of uniformity of meat inspection in this country.

Having thus so formed a (national) mutual insurance society, and put into operation methods that would tend to prove that it is their desire to first help and protect themselves, and by so doing to preserve as far as possible the interests of a great cattle trade; secondly, to show a desire to place on the market a wholesome meat-supply; and thirdly, that they are anxious to co-operate with the various authorities in the interests of public health, we feel sure they would finally receive that proportion of consideration at the hands of the Government which would meet with their approval.

A Crusade Against Disease. It must not be expected or thought that any Government would, at the outset, commence the wholesale stamping out of the disease and the absolute guarantee against diseased carcasses; but, were reasonable demands, as have so far been indicated, made, in all probability they would be the means of stimulating the onset of a practical and thorough crusade against the disease.

Assuming, then, that the Government, on behalf of the general public, pays its share through the "Mutual Insurance Compensation of Cattle Order" towards the losses caused by destruction of diseased carcasses, the next natural question that would follow to be considered would be this:

Although every one is now paying a fair share as insurance against diseased carcasses destroyed for every one's benefit, has this system of insuring against disease to continue, or would it be practicable to commence a system of weeding out the disease by a gradual process at a reasonably small cost, State-aided, so as to enable the breeders in this country to rear healthy herds, and thus subsequently to remove the necessity of

any system of insurance ; and finally, under certain prescribed conditions, to put the onus of guaranteeing cattle against the disease upon the producer ? We believe that such a system could be carried out providing agriculturists are educated by means of legislation which would deal with the whole of the country uniformly and by all means with reason. And we will now deal with such a system under the next heading, namely :

(iii) The Government to issue another Order providing for the scheduling of tuberculosis as a contagious disease under the Diseases of Animals Acts ; the testing of all cattle throughout the country ; notification of suspected disease ; destruction of all clinically diseased cattle with compensation ; isolation of the diseased from the healthy ; branding of all disease-free animals ; Government warranty of all the branded cattle ; better hygienic conditions of housing, &c., and uniform inspection.

The Ideal Method. The ideal method of stamping out the disease from the herds of this or any other country would be the application of the tuberculin test to all cattle once or twice yearly, and the destruction of all reactors, together with improved conditions of housing. Such a procedure would, if carried out by the Government in this country, cost the people—who would have to pay—a sum something like twenty-two millions sterling on the first test alone. We are of opinion that such costly and drastic measures are unnecessary and will never be attempted. In order to eventually produce healthy herds it is not necessary to destroy all the reactors ; or, in other words, it is not necessary to absolutely waste an enormous sum of public money to be successful.

In order to deal with this subject on moderate, practical, yet effectual lines, we believe the following methods, if strictly enforced, would directly meet the case :

It is absolutely hopeless to attempt the erection of a building by trying to paint the roof ; we must commence at the foundation. And, in so far as this subject is concerned, if we would desire success, we must most assuredly make a direct attack on the cause of all the trouble.

The Testing of all Cattle throughout the Country. To begin with, the Board of Agriculture should schedule the disease, and deal with it under the Contagious Diseases of Animals Acts. Then the testing of all the cattle throughout the country should be carried out in order to discover which are the diseased and which are not. Many animals which had reacted to the test, and were therefore shown to be diseased would, however, appear apparently healthy ; but in the great majority of such cases, after slaughter, tuberculous lesions would be easily detected in one or other of the internal organs or glands. On the other hand, however, in a small percentage of cases, even although the animals had reacted to the test and thus were shown to be diseased, one would not be able to find, after slaughter, any evidence of the disease by means of the naked eye. Such animals may only recently have become infected, and the lesions not sufficiently developed to be detected by the naked eye, but when allowed to remain alive the disease in many cases would go on

developing, and eventually these animals would in the majority of cases be a means of further spreading the disease, hence the reason for dealing with all the reactors in the control of the disease. Some ten years ago we tested five shorthorn bulls. These animals were big prize-winners, and were sold to go to America provided they passed the test. Of these five bulls, two reacted to the test, and were thus considered to be diseased, although in the pink of show condition. Some years later we had the opportunity of applying the tuberculin test to a number of dairy cattle, with the result that $33\frac{1}{3}$ per cent. reacted.

Similar percentages have been obtained on the application of the test to thousands of cattle in this and other countries, *e.g.* :

Official figures have shown percentages varying from 18.7 up to 40 per cent. in Durham, Midlothian, Yorkshire, and London and Edinburgh dairies.

In Denmark of 158,991 oxen tested,	31	per cent. reacted
In Sweden of 35,932 „ „	42	„ „ „
In Norway of 30,787 „ „	8.4	„ „ „
In Belgium „ „	60	„ „ „
In Italy „ „	7 to 30	„ „ „
In Germany „ „	25 to 40	„ „ „

In the city of Newcastle-on-Tyne there are 450 dairy cows housed within the registered cowsheds. Although the test has not been applied, yet during the past two years, 21 cows showing signs of tuberculosis have been removed from these sheds, the majority being slaughtered at the knackers on the advice of the veterinary officer. Of these 21 cows, 9 were affected with the disease in the udder.

In the United States. According to A. D. Melvin, Chief Veterinary Surgeon of the Bureau of Animal Industry, United States of America, of 400,000 cattle tested, mostly dairy herds, during the past fifteen years, 37,000 or 9.25 per cent. reacted. Further, the accuracy of the tuberculin test was confirmed in a remarkable manner by post-mortem examination. Out of 23,869 reacting cattle slaughtered, lesions of tuberculosis were found in 23,585, a percentage of 98.81.

The least infected cattle in the United States are those from the ranges, these being affected only to the extent of about 1 per cent., as has been shown by the test and examination after slaughter. To be able to point with certainty to an important factor influencing the cause of the remarkable differences of percentages of cattle found diseased in different parts of the world, it will be necessary not to overlook the wide differences of the surroundings under which animals are kept and reared. We may view in stages—the ranges of America, the various farmsteads, the first-class cowsheds, the medium-class cowsheds, and, finally, the worst insanitary cowsheds in different parts of the world.

Notification of Suspected Disease. It should be made compulsory for every person having in his possession or under his charge any bovine animal which is, or appears to be, suffering from tuberculosis, to give

information of the fact to the local authority or central authority as the case may be.

Destruction of Clinically Diseased Cattle. All cattle showing clinical symptoms of disease (including tuberculous udders) or any cows producing tuberculous milk, should be slaughtered forthwith. The owner of an animal slaughtered and found totally unfit for food, should be compensated to the extent of not exceeding two-thirds market value; and where after slaughter the animal is found partly or wholly fit for human consumption the owner should be compensated to the extent of full market value, less the amount obtained from the carcase and offal, provided that—for all cattle—a reasonable maximum amount be fixed which, when estimating the value of an animal prior to slaughter and independent of disease, shall not be exceeded. Such compensation should be paid by the State.

Isolation of the Diseased from the Healthy. After the application of the test, the herds would have to be divided into two distinct lots, namely:

- (1) Those animals not reacting and certified free.
- (2) Those animals reacting and certified diseased.

The diseased herd would have to be kept *absolutely isolated* from the healthy one, both indoors and out of doors.

Where breeders possessed two farms, the healthy herd could be kept on the one, and the diseased herd on the other.

On single farms it would be necessary to erect new sheds at moderate cost in those cases where sufficient accommodation did not already exist for isolation purposes. Calves born in the diseased herd would be removed immediately after birth to separate sheds kept for the purpose, and would remain there until they had been tested, and, if certified free, would be branded and placed in the healthy herd. The test would be applied to all cattle once every six months for the first two years. At the end of that period the test would be applied to all cattle continuously housed once every six months; and to all cattle continuously kept in the open it would be applied once every twelve months. Any animal from the diseased herd which by the second or any subsequent test was declared to be free from disease would be isolated and subjected to a further test before being put back into the healthy herd. Any animal of the healthy herd reacting distinctly to the test would, on the other hand, be put into the diseased herd. The testing of cattle would be carried out by official veterinarians, at Government expense, for a period of years that the Government found by experience to be necessary.

Branding of Disease-free Animals and Government Warranty. Immediately after the test, all certified healthy cattle would be branded under supervision and at Government expense, and all such branded cattle sold and slaughtered for food purposes would, if found tuberculous, be fully compensated for out of the public purse.

Under the same General Order it would be made unlawful to sell milk from cows of the diseased herd, or to dispose of it in any way for the

purpose of human consumption ; but such milk, after having been properly raised to the boiling-point, could be used for calf-feeding.

Again, these regulations would strictly provide that at any place—farm lands, farm buildings, or any other sheds, buildings, fields, roads or highways—it would be unlawful to cause or permit the mixing of branded and unbranded cattle. Moreover, all dairy cowsheds would be registered and marked as to the number of animals they would accommodate, and it would be made unlawful to house within such buildings any cattle not branded. The only premises to which such regulations would not apply would be public sales, auction marts and cattle-markets, where cattle are simply exposed for sale and not housed, licensed slaughterhouses and public abattoirs.

Provision for better Hygienic Conditions under which Cattle are to be housed. No matter what means are adopted as an attempt to eliminate the disease from our herds, we can never be successful unless we take seriously into account the conditions under which cattle are to be housed. The pulling down of *all* the buildings, and the erection of most elaborate structures, is not necessary ; but those dark, unventilated cowsheds, where no proper drainage exists, the walls broken up and patched here and there, absorbent and filthy, damp, draughty and either cold or stuffy, and in which cattle are crowded without any consideration whatever as to air space, ought no longer to be allowed to exist. It is scarcely possible to go on to any farm in this country without finding that such insanitary dwellings for cattle are the rule rather than the exception. Such buildings are simply dens for the spreading of disease. The owners are—as a rule—wealthy landed proprietors who themselves or through their agents do not seem to consider the repair or arrangement of their farm buildings (structurally or otherwise)—even in so far as the simplest of sanitary arrangements are concerned in relation to the health of the animals to be housed within them—of any importance whatever. And, until legislation deals with this subject, firmly and uniformly throughout the country, one of the greatest drawbacks will exist to an attempt—through these suggested regulations—on the part of breeders and feeders to produce sound beef animals.

First-class buildings are often seen, erected at great cost, where the system of drainage, methods of ventilation, and the arrangement of the stalls are such as are almost directly opposed to health. The cost of the building is not the most important point to be considered ; it is the method of arranging for proper light, ventilation, drainage, cubic capacity and cleansing, together with the proper arrangement of the stalls—that ought to be considered as of the first importance ; and these can all be provided for in the erection of buildings without any appreciable addition to the cost.

The necessary disinfection of the interior of all the sheds must be provided for, and the thorough and regular cleansing of the interior of all such cattle-sheds should be most rigidly put into operation. We feel sure no one can conscientiously object to cleanliness.

Uniform Inspection. Under such regulations dealing with the various measures already indicated, it will be obvious that a system of uniform inspection of farm and dairy herds and buildings would be essential throughout the country.

It is scarcely necessary for us to emphasise the fact, for it is too well known, that the system of inspection, including meat inspection, in this country is an absolute farce. In scarcely two places are the methods of meat inspection found alike, and indeed in the majority of places no inspection obtains whatever. This state of affairs should no longer exist. Permissive legislation will not meet the case. Legislation should be compulsory, but by all means let us have a uniform system and standard of meat inspection throughout Great Britain. According to the Report (Part I.) of the Royal Commission on Tuberculosis, 1898: "a number of witnesses expressed the opinion that veterinary inspectors alone should be employed. On this question we are satisfied that some pathological training is the proper basis upon which to build the knowledge required by a meat inspector, and that, wherever practicable, veterinary surgeons, thus educated, should be employed as meat inspectors. In large towns, where a staff of inspectors is maintained, we do not think it necessary that *all* of these should be veterinary surgeons, but all meat inspectors should pass an examination and receive a qualifying certificate from a central authority before appointment."

Years ago, almost without exception, any medical officer or inspector of nuisances (to use the words of Sect. 116 of Public Health Act 1875) used to perform the meat inspection in this country. To-day, certain large cities and towns have awakened and employ veterinary officers to supervise and carry out their meat inspection. Moreover, progressive medical officers, apparently realising that in this direction we are far behind our colonies and foreign countries, are almost unanimous in declaring, and in many instances have been successful in educating their authorities, that whole-time veterinary officers are the most fitted—by reason of their education—to carry out and supervise the inspection of meat.

But in order to assist in bringing this subject up to date, it will be necessary to have the Public Health Acts so amended that it will not be necessary for the veterinary officer to be appointed also as an inspector of nuisances, &c., to enable him to perform his duties legally.

Further Suggestion. (iv) Order removing responsibility of public as to paying for the testing, and putting that responsibility upon the farmer; the State to brand the cattle free of charge, and the farmer to warrant all *cattle not bearing the brand* :

At the commencement, cattle, insured by farmers and butchers only, would be insured at the time of purchase at a recognised office nearest the place of sale or cattle-market. On condemnation of a carcass this would be paid for by the "*Butchers' and Farmers' Cattle Insurance Association*."

When the "*Mutual Insurance Compensation of Cattle Order*" came

into operation, all cattle would then be insured in the district in which it was intended to slaughter them. In all cases, insurance would hold good for, say, ten days or a fortnight. On condemnation of carcase and offal, these would be dealt with by order of a magistrate, and the local authority would pay the owner full market value on behalf of the Government. The local authority would also deal with the hide and tallow obtained from the condemned carcasses on behalf of the State. With regard to branded cattle, which would of course be warranted by Government, on condemnation of a carcase, this would be dealt with in precisely the same way as insured carcasses, *i.e.*, by the local authority on behalf of the Government.

The "Mutual Insurance Compensation of Cattle Order" would continue to operate for twelve or eighteen months after "the order providing for the testing and branding, &c., of cattle" had come into operation, so that all unbranded apparently healthy bullocks and heifers sold for food purposes, but which had not yet been tested, would still be eligible for insurance under the order.

At the expiration of that period, the "Mutual Insurance Compensation of Cattle Order" would be revoked and thus cease to operate. After the revoking of that Order, of all cattle sold for food purposes, only those that were branded would be dealt with by the Government, and, as already mentioned, would be guaranteed up to full market value. All other cattle, that is to say, those not branded, would then for the first time be properly classified as trade risks. The price of these animals would then be mere speculation, for there would be a demand for those bearing the brand.

What the Order would Provide for. We have seen that the Order under which the disease would be scheduled would provide for: The testing and branding of herds, better hygienic conditions of housing, &c., destruction of clinically diseased cattle, isolation of diseased from the healthy, full compensation for all branded cattle, uniform inspection and certain other details. When this Order had been in operation long enough to practically remove the disease from out the herds, to provide better sanitary conditions of farm and other buildings, and thus put the farmers of this country on a sound footing, it would then be admitted that the time had arrived when the Government would be fully justified in removing from that order the responsibility of the public to any longer pay for the testing of cattle.

Such responsibility would then naturally fall upon the farmer, who would be expected to continue such testing if necessary. The Government would, at the farmers' request, but at its own expense—whilst keeping all the previously described regulations in strict operation—be prepared to supervise the testing and to brand all cattle found by the test to be free from the disease; and all such branded cattle, if found tuberculous on slaughter within, say, three months after the Government supervised test, would always be fully compensated for out of the public purse. Then, and not until then, can farmers be reasonably expected or

compelled to give with the cattle they sell either an implied or express warranty.

Conclusion. From these two exhaustive discussions, one from a meat expert and the other from an inspector, it will be very apparent that the question is one of considerable difficulty as well as of national importance. Our effort has been to place all the evidence before our readers rather than to dogmatise, since the foregoing pages contain the facts which must form the basis of future action.

CHAPTER X

THE FEDERAL MEAT INSPECTION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE

No record of modern scientific meat inspection would be at all adequate unless it comprised Dr. Melvin's account of the procedure in the United States as described in the publication of the above title. By kind permission we are permitted to reproduce it here, together with the illustrations showing the American methods and results. Besides the lessons of comparative value contained in it, there is also much of general and historical interest which would have had to be introduced elsewhere in these volumes in its absence. Our thanks are due to Dr. Melvin and his staff for many courtesies during the preparation of these volumes.

The Importance of Meat as a Food. Meat forms a larger part of the food of the people of this country than is the case with any other country except Australia. Two recent estimates in this Department * have placed the total consumption of meat (in terms of dressed weight) in the United States for the last census year (1900) at 13,611,703,000 lb. and 14,116,886,000 lb. respectively. The first of these does not include lard, while the other does. These estimates represent a *per capita* consumption of 179 lb. in the one case and 186 lb. in the other. It is calculated that meat constitutes about 30 per cent. of our total nutritive material and costs about 30 per cent. of the total.

The Object of Meat Inspection. Meat animals are subject to many diseases which impair or destroy the wholesomeness of their meat as human food, but the presence or the effects of disease are not always discernible in the dressed carcass. A piece of meat may carry the germs of a dangerous disease without giving any indication of this fact to the consumer. To detect disease there should be an expert inspection at the time of slaughter.

To protect the people at a point where they are unable to protect themselves is, generally speaking, the object of meat inspection. Diseased meat is the direct cause of disease in those who eat it. The consumer, being himself unable to determine whether or not the meat he buys is diseased, demands that he be protected by the Government from the cupidity or ignorance, or both, of those from whom he buys.

Let us consider, then, the importance of maintaining over this large

* Twenty-second Annual Report, Bureau of Animal Industry (1905), page 283, and Bulletin 55, Bureau of Statistics.

and expensive portion of the food of the people—a portion that is subject to diseases that the people themselves cannot discover—a constant vigilance by men able from long study and training to detect such diseases where the layman sees nothing unusual.

Since before the time of Moses the necessity of an official meat inspection has been recognised. Without going into the history of enactments by tribes, by municipalities, States and national governments, it may be said that meat-inspection legislation has more or less kept abreast of increasing knowledge, and that, although federal legislation in this country has not at all times kept even pace with science, the present law is as advanced a measure as the medical profession and sanitarians demand, and is, perhaps, the most stringent and far-reaching of existing laws on the subject.

Development of the Packing Industry. Meat inspection in the United States falls naturally into three periods: (1) From the opening of the Union Stock Yards in Chicago in 1865 to the year 1890, when the first federal meat-inspection law was passed; (2) from the latter year until the passage of the law of 1906, and (3) from then until the present time.

By the year 1851 the packing industry had become firmly established in Chicago, and it grew steadily until in 1865 the several railroad companies centring in Chicago and some of the managers of the small stock-yards agreed to combine for the building of the Union Stock Yards, which were opened on Christmas Day of that year. Meat packing had by that time also become an important part of the business of Kansas City, St. Louis, Omaha, St. Joseph and Cincinnati. An idea of the growth of the industry may be gathered from the increase in the number of cattle received in Chicago. From 1851 until the building of the Union Stock Yards the total number of cattle received in Chicago was 1,691,410; of these 566,379 went to the packing-houses, of which number 291,035 were consumed in the city. In the succeeding twenty years the number of cattle received was 20,024,774, of which 7,000,000 were slaughtered in Chicago. In 1906 the number of cattle received was 3,329,250, of which nearly 2,000,000 were slaughtered.

With the establishment of the Union Stock Yards meat-packing was reduced more to a system, and it is recorded that the city health authorities instituted an inspection of the packing-houses, an inspector being stationed at each of the two gates through which animals passed from the railroad on their way to the stock-pens. These health officers were “practical butchers whose experience enabled them readily to detect any cattle or hogs that might be suffering from disease or were not fit for human food.”

The first statistics of cattle inspection were compiled in 1881, when of nearly 2,000,000 cattle inspected for slaughter in Chicago 515 were found to be diseased.

Some Early Statements showing Necessity for Inspection. In 1870 the United States Commissioner of Agriculture, Horace Capron, saw the danger that menaced the public from eating unwholesome meats,

for he said, in urging the establishment of a division of veterinary surgery in the Department of Agriculture, "The value of stock lost annually from disease is enormous, and threatens not only to decimate our animals but to expose the human family to disease from the consumption of unwholesome meats." Some years later, Commissioner William G. Le Duc, in commenting on the prevalence of hog cholera or swine plague, said that while it had not been shown that the disease could be communicated to man, at least in a fatal type, no diseased animal was fit for food. It was a notorious fact, he said, that many entire herds of swine were slaughtered as soon as the disease was discovered to have made its appearance among them, and that their meat was placed on the market for sale and ultimate consumption.

Early Municipal Inspection at Chicago. According to a report by Mr. Edward W. Perry, special agent of the Bureau of Animal Industry, published in the First Annual Report of the Bureau (1884), a number of articles appeared in the Chicago newspapers in September 1882, declaring that numbers of diseased animals were taken from the stock-yards and slaughtered for food for human beings. The articles were very graphic in their description of scenes in the slaughterhouses and stock-yards, and were copied widely in the Eastern States as well as in Europe. Although it was explicitly stated that great care was used by canners and by shippers of dressed beef to prevent the slaughter for their use of animals unfit for food, the effect of those articles was damaging to the interests mentioned. The principal packers and shippers of beef at once exerted themselves to assist the city health authorities of Chicago in their efforts to prevent the sale of any animal suffering from disease or from injuries that made the flesh unfit to eat. The department of health had authority for this purpose over the entire area within a line one mile outside of the limits of the city. An inspector was stationed at each slaughterhouse, and one was constantly on duty at the stock-yards during the hours when the gates of the yards were open for the passage of stock. The officers scrutinised the animals offered for sale, especially those destined to be slaughtered in Chicago. If an animal exhibited indications of a disease making the flesh unsuitable for food, it was ordered to be sent directly to an establishment where the carcass might be converted into fertiliser. Employees of the canning companies and of shippers of dressed beef reported to their principals or the inspectors the presence in the markets of any diseased animal, and condemnation quickly followed.

Inspectors also were stationed at the wholesale markets to examine the meats offered for sale. When the meat was condemned, kerosene was poured over it.

In 1881 Chicago had five meat inspectors on duty, according to Dr. Oscar C. Dewolf, commissioner of health of the city. Two of these inspectors were detailed for duty at the stock-yards and three in the city markets. Technically the city had no right to exercise police power at the stock-yards, but the stock-yard proprietors and com-

mission men dealing in animals found it to their interest to permit the city inspectors to exercise their functions at the yards, because if an animal was condemned as unfit for food the carcase was retained for fertilising purposes, while if it were sent to the markets outside the yards it would have been confiscated when condemned and no return made to the owner.

Mr. Perry, after investigating conditions at Chicago, wrote as follows : "These facts seem to warrant the assertion that the meat-supply of Chicago is practically entirely wholesome. Self-interest leads the packers and canners to use every available means for preventing even the shadow of suspicion resting upon the goods they have to sell ; hence they become most efficient aids to the health department, which has given proof of efficiency in this branch of its work." Mr. Perry further said that comparatively very few of the cattle received at Chicago showed evidences of disease.

Dr. Dewolf stated that the city health authorities were only interested in protecting the citizens of Chicago, but that for scientific purposes and for other reasons he had closely observed the condition of the hogs received at the stock-yards since February 1877 ; and he declared that he knew positively that the stories and reports current as to the disposition of packers to slaughter diseased or emaciated hogs for packing purposes were maliciously and wickedly false.

Inspection at Cincinnati. In Cincinnati skilled inspectors were appointed by a board of officers of the chamber of commerce. They were placed under bonds for faithful performance of duty, governed by specific regulations, and accountable to the committee on provision inspection, also appointed by the board of officers of the chamber. These inspectors were ready at all times to inspect hog products, and buyers were urged to have their products inspected. Inspectors also were appointed by the municipality charged with supervising all stock.

Foreign Restrictions on American Live-stock and Meats. It is clear that inspection by city health authorities and by the packers themselves obtained in the Union Stock-Yards in Chicago and in the slaughterhouses of other cities for a number of years prior to 1881, and it is probable that a more or less efficient inspection was practised from the beginning of the meat-packing business. That this inspection was not satisfactory to some foreign governments, however, was shortly to be shown by the action of several nations in placing restrictions upon our exported meats, and finally in prohibiting them entirely. The decrees against American meats were considered unjust, for the general physical condition of the animals in this country was better than in other countries, and it was generally accepted by stock-raisers and meat-packers that the prohibition was for the purpose of preventing competition.

Restrictions began with pork products, Italy being the first country to issue a decree, in 1879. She was followed by Hungary a few months later, Spain and Germany in 1880, France, Turkey, and Roumania in 1881, Greece in 1883 and Denmark in 1888. The reason assigned by

these countries for prohibiting the entry of our pork was the alleged presence therein of trichinæ and the impracticability of a sufficiently thorough microscopic examination to guarantee that the meat was not affected. Following the passage by the United States Congress of the law of 1891 and the commencement of microscopic inspection of pork, Germany, Denmark, Italy, France, Austria-Hungary, and Spain modified their regulations so as to admit swine products if they were certified to as free from trichinæ.

In the latter part of 1894 various States in Germany and the countries of Denmark, Belgium, and France prohibited the importation of cattle from the United States, giving as a reason the prevalence of Texas fever, pleuro-pneumonia, &c. Since 1879 Great Britain has required that American cattle shall be slaughtered immediately upon arrival. This restriction was brought about by the existence of pleuro-pneumonia in the United States. In 1880 Commissioner Le Duc sent a veterinarian to England to inspect cattle upon their arrival there, and during his stay there not one of the living animals out of 11,000 exported was found to be affected with the disease, and upon *post-mortem* examination of the lungs only six cases were detected.

Following the prohibition of our pork by Germany and other countries, the Department of State in March 1881, prosecuted an examination into the various phases of the pork industry in the Western States, covering all possible causes which could operate to render the products dangerous to health, and in October 1883, the President appointed a commission of impartial scientists and representatives of the New York Chamber of Commerce and the Chicago Board of Trade, instructing the members thereof "to make a searching examination on the spot of all the conditions of the hog-raising and pork-packing industries of the United States, and to follow by the most practical examination the course of this food staple from the fields and farms of the United States to the wharf where it is shipped or to the shop where it is exposed for sale and domestic consumption." The results of these investigations were communicated to Congress by the Executive, accompanied by voluminous diplomatic correspondence and other information bearing on the subject. While it was conceded that trichinosis was found in American swine, the proportion of animals thus affected was declared to be less than in the countries of Europe.

Recommendations for Establishment of Federal Inspection. In 1885 Commissioner Norman J. Colman called the attention of Congress to the importance of vigorous means and measures to protect our cattle interests, saying that the existence of pleuro-pneumonia and other contagious diseases had a very serious effect upon our foreign and inter-State commerce in living animals. The Commissioner pointed out that Great Britain, on account of it, had placed such restrictions upon the trade that no cattle, sheep, or swine, could be sent there from this country except for immediate slaughter at the landing-place. He showed that since the restrictions were enforced the exportation of sheep

had steadily declined from 108,652 in 1879 to 32,510 in 1884, and that of swine from 25,033 in 1879 to 4 in 1884. The restrictions upon inter-State commerce, from the same cause, the Commissioner said, also had been a great burden, and the reduction in the value of cattle in the affected States had been enormous. The traffic in live animals, he said, formed such an important part of the commerce of the country that such regulations should be adopted as would ensure the removal of these restrictions and do away with the cause which led to them. Experience had shown that the powers conferred by the Act creating the Bureau of Animal Industry were not sufficient for the purpose. Although relating primarily to the live-animal industry, the remarks of Commissioner Colman had a direct bearing upon the meat business.

In 1889, Secretary J. M. Rusk, in his annual report, made an earnest appeal for legislation which would provide for a federal meat-inspection law. The secretary in vigorous language called the attention of Congress to the widely prevalent rumours of cattle diseases in the United States, which, although having little foundation in fact, continued to be circulated extensively in foreign countries, to the great injury of our cattle trade. The existence of a demand for our surplus meat products, the secretary said, was plainly evident, and it was in the highest degree desirable that the Government should adopt all means in its power to secure for producers every opportunity to compete on fair terms in the markets of the world for the disposal of their surplus production. "I would therefore insist most strongly," said the secretary, "upon the necessity of such a national inspection of cattle at the time of slaughter as would not only secure the condemnation of carcasses unfit for food, if there be any, and guarantee the inspected product as untainted by diseases, but which should enable the national authorities to promptly discover any cattle disease centres."

The secretary repudiated what he described as "captious objections" on the part of foreign authorities to the wholesomeness of our meat products, but added that as long as the Government neglected to take precautions universally adopted by the governments of those countries in which a market was sought for surplus products, and left it to the officials of other countries to inspect our live cattle or our meats, it was impossible to present as forcible arguments as could otherwise be made against restrictions on our trade, the foreign countries claiming, with some show of reason, that they had better opportunities for learning of diseases among American cattle than were enjoyed by the American Government itself.

"I therefore earnestly recommend," wrote the secretary, "such an amendment to the law under which the Bureau is at present organised as will provide for such official national inspection as shall guarantee the fitness of our meat products for food consumption under the seal of the United States Government."

The First Federal Meat-inspection Law. The following year (in August 1890) Congress took the first step toward the establishment

of federal meat inspection by the passage of a law "providing for an inspection of meats for exportation" This Act provided for a careful inspection of salted pork and bacon intended for exportation, to determine whether it was wholesome and fit for food, when the laws, regulations or orders of any foreign government required inspection, or when any buyer, seller, or exporter of such meats requested inspection; and also for the inspection of all cattle and sheep for export. Such inspection, it was provided, should be made at the place where the meats were packed or boxed, and the meats should be stamped or marked after inspection. The inspectors were authorised to issue certificates of inspection to the shipper of the meat and to the consignee and also for the Department of Agriculture.

Primarily, therefore, meat inspection by the Federal Government was begun in the United States not because Congress had in view the protection of the people of this country from the results of eating diseased meats, but because foreign Governments were opposed to allowing American meats to enter their ports for the alleged fear that the people of those countries would suffer therefrom.

Under the law of August 30, 1890, the Bureau prescribed regulations which required all packers or exporters, buyers or sellers of such meats to make application in writing to the Secretary of Agriculture for inspection. Every inspected package of salted pork or bacon was required to be stamped, if found wholesome and fit for human food. Certificates of inspection were issued to the exporter, the consignee and the Department. Inspectors were required to report daily the number of stamps issued.

While this law was a step in the right direction, it soon became apparent that it did not meet all conditions. It was the intention of Congress in passing this measure to enact a law which would enable the Government so to certify to the wholesomeness of our pork products as to entitle them to entry in foreign countries. The Act, however, provided more particularly for an inspection which would determine the character and manner in which these products were packed and their condition at time of shipment, and did not reach to the more important end of determining whether or not the animals from which they came were diseased at the time of slaughter. The consequence was that foreign Governments refused to recognise such inspection certificates as were issued thereunder as sufficient to warrant the removal of the prohibition which they had maintained. Secretary Rusk called the attention of Congress to this inadequacy of the law, and suggested the more important provisions which should be made.

The interest of the people in meat inspection had been increasing steadily, and with the concentration of the slaughtering business in a few large cities the feeling became strong that there should be a more rigid supervision for the protection of the health of consumers than that afforded under the law of 1890 or by the local authorities where the abattoirs were located. This feeling found expression in

various States by the enactment of laws designed to secure inspection of meat introduced from beyond their borders. On the ground, however, that such laws were to a greater or less extent discriminative, they were in most, if not in all, cases held to be unconstitutional, and the desired object was not accomplished.

In addition to the desire of consumers to be protected from the real or fancied dangers to their health, there were to be considered the fears excited abroad by alarming though unfounded statements of sensation-alists interested in injuring our export trade. It became apparent that if the country was to keep its foreign markets not only must the best meats of all kinds be sent abroad, but they must be accompanied by certificates that they had been properly inspected and that the animals from which they came were perfectly sound and free from any disease.

The Law of 1891. In the light of these conditions Congress passed the Act of March 3, 1891, which provided for the inspection of live cattle, hogs, and the carcasses and products thereof which were the objects of inter-State commerce, thereby giving authority for an inspection of animals and meats.

This law provided, among other things, that the Secretary of Agriculture should cause an inspection to be made, prior to the slaughter, of all cattle, sheep, and hogs which were the subject of inter-State commerce and which were about to be slaughtered at slaughterhouses, canning-, salting-, packing-, or rendering-establishments in any State or territory, the carcasses or products of which were to be transported and sold for human consumption in any other State or territory. In addition to this *ante-mortem* inspection, it was provided that "there *may* be in all cases where the Secretary of Agriculture may deem necessary or expedient a *post-mortem* examination of the carcasses of all cattle, sheep, and hogs about to be prepared for human consumption at any slaughter-house-, canning-, salting-, packing-, or rendering-establishment in any State or territory, or the district of Columbia, which are the subjects of inter-State commerce."

It was also provided in this law that it should be unlawful for any person to transport from one State or territory to another State or territory, or for any person to deliver to another for transportation from one State or territory to another, the carcasses of any cattle, sheep, or swine, or the food products thereof, which had been examined in accordance with the law and found by the inspector to be unsound or diseased. It was declared that any violation of this law should be punishable by a fine not exceeding \$1000, or imprisonment not exceeding one year, or both. Cattle, sheep, or swine slaughtered by any farmer upon his farm and transported from one State or territory to another were exempted from the operations of this law except in case the carcasses of such cattle, sheep, or swine went to any packing-house or canning-establishment and were intended for transportation to another State or territory, in which case they were subject to a *post-mortem* examination.

Regulations under this Law. The regulations issued under this Act provided for an examination before and after slaughter by veterinary surgeons of all animals slaughtered for export or inter-State trade, the condemnation of all animals found to be diseased, and the proper identification of the carcasses and other products entering into these two classes of commerce.

The regulations prescribed that a veterinary inspector should be assigned to each establishment applying for inspection that had been officially numbered, and that the inspector should have full and free access at all times to all parts of the building or buildings used in the slaughter of live animals and the conversion of their carcasses into food products. The inspector was required to inspect carefully all animals in the pens about to be slaughtered, and no animal was allowed to pass to the slaughtering-room until it had been inspected. Whenever an animal was found to be diseased it was condemned and the owner directed to remove it from the premises and dispose of it in such manner as was provided by the laws of the State and municipality in which the abattoir was located. The inspector was also required to make an examination of all animals slaughtered and make a report of the *post-mortem* inspection to the Department. Carcasses found to be diseased and unfit for human food were ordered to be at once removed under the supervision of the inspector and to be disposed of in the manner prescribed by the State laws. Any owner of an establishment who allowed any animal found diseased to remain on his premises beyond the time set by the inspector for removal forfeited his right to inspection and was refused certificates of inspection upon his products. Records were kept of the time and place of inspection, the number of the establishment and the name of the packer and inspector, in order that all inspected packages might be traced to the place of origin.

The regulations also provided for a microscopic examination of hogs after slaughter in order to certify that they were free from trichinæ, Germany and other countries having prohibited such meats on the ground that they were so affected. When the slaughtered hog was passed into the cooling-room the veterinary inspector or his assistant took from each hog carcase three samples of muscle, one from the pillar of the diaphragm, one from the tenderloin, and the other from the shoulder. These samples were put into a tin box and a numbered tag placed upon the hog and a duplicate number on the box containing samples. The samples were then taken to the microscopist, who made a thorough examination of each sample, furnishing a written report to the inspector in charge of the killing-room. All hogs reported as affected with trichinæ were at once removed from the cooling-room under the supervision of an inspector, and disposed of by tanking or by thoroughly cooking.

Operations under and Effects of the Law. The first inspection under these regulations was in New York City at the abattoir of Eastman and Co., May 12, 1891, and was confined to the inspection of their export

dressed beef. At the beginning of June 1891, the work was inaugurated in Chicago, and soon thereafter at South Omaha, Nebraska; Kansas City, Missouri; Milwaukee, Wisconsin; Jersey City, New Jersey; and Hammond, Indiana. The microscopic examination of hogs was commenced at the abattoirs of Nelson Morris and Co., Armour and Co., and Swift and Co., Chicago, on June 22, 1891.

The workings of this inspection and the carrying out of the regulations were watched with careful scrutiny by the representatives in this country of foreign Governments, and the first result of the microscopic examination of hogs was an order made by the German Government on September 3, 1891, removing the prohibition that it had maintained since 1880 against the importation of American pork products. The removal of this prohibition by Germany was followed within a short time by the removal of a similar prohibition by Denmark, and later by Italy, France, and Austria.

The demand for inspection by the packing-houses became at once very large, and the insufficiency of the appropriation for the work was made apparent. The attention of Congress was called to this in the first report made by the Secretary of Agriculture after the work was instituted, and it was recommended that Congress appropriate money enough to extend inspection to all applicants.

In the first full year following the institution of federal meat inspection (the fiscal year ending June 30, 1892) 5,076,929 animals were inspected, of which 3,167,150 were cattle, 59,089 were calves, 1,267,329 were hogs and 583,361 were sheep.

The experience of the Bureau in making microscopic examinations of pork under the system first established proved in the first year that one examination of three specimens taken from a carcass was not sufficient. The system was, therefore, changed on September 7, 1892, when an order was issued requiring a double examination to be made. Out of 1,172,047 carcasses examined after that order went into effect there were found on the first examination 34,552 containing trichinæ, while on the second examination there were found 5518 others affected in the same way.

The cost of the inspection of cattle, sheep, and calves to the Government for the year mentioned was $5\frac{1}{2}$ cents per carcass, and for the microscopic examination of pork 6 cents per carcass. The following year the cost of cattle and sheep inspection was reduced to $4\frac{1}{2}$ cents per carcass, while the cost of the microscopic inspection of pork was increased by the double examination to $8\frac{3}{4}$ cents per carcass. The total cost of meat inspection for the first full year was \$279,508.37.

Following the raising of the prohibition in Germany against American pork, the exports from this country increased largely, and in 1892 there were exported 38,152,874 lb. of inspected pork. The next year, however, the exports decreased to 20,677,410 lb. The quantities exported directly to countries requiring inspection in 1892 were 22,025,699 lb., and in 1893 8,059,758 lb. In a measure this decrease in the exports

was attributed to the high price of pork in this country. Other causes were the obstacles put in the way of importation by certain import regulations instituted by the foreign countries which largely imported our meats. Foreign newspapers printed statements criticising the work of inspection and disparaging the quality of our meats. It was said that there were but two or three inspectors at a great packing centre like Chicago or Kansas City, and that the hogs were cut into pieces at the time of slaughter, so that it was impossible to identify them after the specimens had been examined microscopically. The German Government, instead of opposing the admission of American pork for want of inspection, after the microscopic inspection had been established in this country, claimed that the American certificates of inspection were not correct. France also imposed burdensome regulations on American pork even after it had been microscopically inspected. Belgium followed with a practical prohibition of American dressed beef in the requirement that the lungs of the animals accompany shipments.

The benefits arising from meat inspection as carried on under the law of 1891, however, made it apparent that the inspection could be extended with profit. Secretary Rusk in his last annual report pointed out the need for extending the inspection to cover all animals slaughtered for human food, in order, first, to secure to the American consumers, who are large meat-eaters, and who ought to have the very best kinds of food, the most healthful meats, free from all possible taint or disease. It was also important, the secretary said, that the reputation of American meat products should be maintained abroad.

By the year 1894 meat inspection had grown into the most important and extensive part of the work of the Bureau of Animal Industry. The *ante-mortem* and *post-mortem* examination was extended to hogs at the various abattoirs where inspection had been established, thus greatly increasing the field of this service. In that year inspection was carried on at forty-six abattoirs in seventeen cities, whereas in the first year of meat inspection but twenty-two abattoirs had inspection.

Recommendations for Strengthening the Law. The Chief of the Bureau of Animal Industry (Dr. D. E. Salmon) in his report for 1895 suggested that the States could provide an efficient method of co-operation by enacting legislation making it illegal to sell for human consumption within the State any meat from animals condemned by federal inspectors unless the animals were held a sufficient time before slaughter to enable them to recover and become fit for food products. This, it was pointed out, would obviate the necessity for applying the State meat-inspection service to the abattoirs which had federal inspection. The meat-inspection service, he said, would not be in a satisfactory condition until such co-operation was effected.

Despite the absence of a law giving it authority, the Department prevented the sale, even for local trade, of the condemned carcasses of animals slaughtered in abattoirs where inspection existed, by threatening

to use its power to expose any firms which dealt in that class of meat.

It was urged that Congress should give the Bureau more power to administer the meat-inspection service. Condemned meat, it was said, need not be destroyed, but the owners should be compelled to use it in a legitimate manner, as in the manufacture of fertilisers and grease. It was not proper for human food, and should not be sold for that purpose. It was suggested that to saturate such meat with a nauseous compound like carbolic acid, which would enable any one to detect it at once, would not detract from its intrinsic value, but would prevent its fraudulent use ; or it could be immediately rendered into fertiliser. In addition to giving authority to the Bureau to require a proper disposition of the condemned meat, it was urged that there should be a penalty for failure to dispose of it according to the Department regulations.

It was also recommended that an addition be made to the law prohibiting the operation of an abattoir in the absence of an inspector, and that abattoirs should not be opened on Sunday. The managers of some abattoirs at that time and afterwards showed a disposition to kill animals at night or very early in the morning or on Sunday without notifying the inspector.

The Amendment of 1895. The Act of Congress of March 2, 1895, providing for the expenses of the Department of Agriculture, amended the Act of March 3, 1891, so as to confer power upon the Secretary of Agriculture to make such rules and regulations as he deemed necessary to prevent the transportation from one State or territory to another, or to any foreign country, of the condemned carcasses or parts of carcasses of cattle, sheep, or swine which had been inspected in accordance with the provisions of the law.

There was no further enlargement of the Department's powers until 1906, although the officials constantly recognised their limitations and attempted by three recommendations that appear in reports, as well as through quiet work of which no record is preserved, to secure legislative enactments that would remedy the defects.

Ineffectual Effort to Place Cost on Packers. In 1897 the Committee on Agriculture presented to the House of Representatives a Bill proposing that the Secretary of Agriculture should charge for the inspection of meat at the rate of 3 cents a carcass for cattle, 1 cent a carcass for sheep and swine and other animals, 3 cents for each carcass or piece of pork examined microscopically, and 1 cent a hundred pounds for meat re-inspected. The committee said that the expenses of the Bureau of Animal Industry had increased and that the beneficiaries should pay at least a portion of this expense, and they added that the packers who had inspection were the beneficiaries, for "they certainly enjoy market advantages not possessed by the owners of meats not so inspected and certified." The average cost of meat inspection was then 5 cents for cattle, 2 cents for calves, sheep, and swine, and 5 cents for microscopic examination

of each piece of pork, and the committee proposed to divide this between the public and the packers. The Bill failed.

The Law of 1906. Although neither the law of 1891 nor the amendment of 1895 mentioned sanitation, the Department in February 1906, issued a radical rule, demanding cleanliness in all parts of the packing-house and the installation of toilet-rooms. Progress was being made on this line when the agitation of 1906 directed public attention to the inadequacy of laws on the subject and brought about the enactment of the law of June 30, 1906. The so-called revelations, however, can scarcely be said to have added anything to the Department's knowledge, while such of the strictures as were exaggerated and incorrect were, from the Department's thorough familiarity with the subject, easily refuted. The defects and limitations of the laws under which the inspection had been conducted up to that time were realised by the Department, and several unsuccessful efforts had been made by the Secretary of Agriculture and the chief of the Bureau to procure the enactment of new legislation and the increase of appropriations in order to extend the inspection and improve its efficiency. The disclosures of unsatisfactory conditions in 1906 related almost wholly to canned and prepared meats, the use of preservatives, and the insanitary condition and methods of the packing-establishments—matters over which the Department up to that time had no control under the law.

The law of June 30, 1906, took effect the next day, except that the provisions regarding the transportation of meats did not go into effect until October 1. It conferred on the Secretary of Agriculture greater power and made a permanent annual appropriation of \$3,000,000 to pay the cost of the inspection, enabling the Department to greatly extend and strengthen the inspection service. Under this law the inspection is applied not only to the live animals before slaughter and to the carcasses immediately after slaughter, as was the case under the former law, but afterwards to the meats and meat-food products in all the stages and processes of preparation, curing, canning, &c., and the Department is empowered to require sanitary equipment, conditions and methods in the slaughtering, and packing-establishments, to prevent the use of harmful chemicals and preservatives and of misleading labels, and to regulate the transportation of meat in inter-State and foreign commerce.

This law applies only to cattle, sheep, swine, and goats, and to the carcasses and meat-food products of these animals. Poultry, fish, and game are not subject to inspection, and there is no need at present to provide for the inspection of either horses or dogs, there being none slaughtered for food in this country.

The largest sum ever expended for meat inspection in any one year before the passage of the new law was a little more than \$800,000.

Description of the Meat Inspection. Meat inspection under this law proceeds by logical steps. Meats or meat-food products, except those of farmers, retail butchers, and retail dealers, cannot be shipped from one

State to another or abroad unless they bear the official meat-inspection marks. A person or firm desiring to make such shipments must therefore make application to the Department for inspection, stating the extent and character of the business expected to be done. The Department, as directed by the law, sends its experts in sanitation, who look over the plant and make their report with recommendations to the Washington office.

Sanitary Requirements. Usually changes are required in sanitation or in facilities for conducting the inspection. The Department points out to the applicant the necessary changes, and its requirements are in accordance with broad and well-known principles. It requires that each room used in the ordinary processes be well lighted and ventilated; that ceilings, walls, and floors be of such materials as to be easily cleaned; that toilet-rooms, urinals, and dressing-rooms sufficient in number and ample in size be provided and be fitted with modern lavatory accommodations, including running water, toilet-paper, soap, and towel; such rooms must be properly ventilated and lighted and be entirely separate from the compartments where carcasses are dressed or meats handled. The last-mentioned compartments must be so located that odours may not drift into them from toilet-rooms, catch-basins, tank-rooms, hide-cellars, &c. The premises about the plant and belonging to it also come in for attention. The yards, pens, alleys, and chutes must be clean, and the common practice of fattening hogs or other animals on the refuse of the slaughterhouses is forbidden on the premises, as well as any other use not countenanced by the principles of sanitation. When reports show that the packer has put his plant in proper condition, the Bureau assigns an official number to the establishment, details a sufficient number of inspectors to conduct the inspection, and business may proceed.

This, however, is not all there is to the sanitation required by the law. A slaughterhouse gets dirty with great rapidity; like a small boy, it requires constant cleaning. Blood flows in streams, and entrails with their contents must be handled. One day's operation, or less, is sufficient to put the plant into such a condition as to offend the sensitive eye and nostril and to sicken the weak and unaccustomed stomach. For his own profit the enterprising packer will keep up a degree of cleanliness, but the Bureau requires more. It demands that ceilings and walls shall be frequently cleaned and whitewashed or painted, and that trucks, trays, and other receptacles, chutes, platforms, racks, tables, and all tools used in moving, handling, cutting, chopping, mixing, canning or other processes be thoroughly cleaned each day they are used. It looks after the workers also and forbids the employment of any one who has tuberculosis or other communicable disease; it requires that the clothing which comes in contact with the meat shall be of a material that is readily cleaned, and that it shall be cleaned each day. This requirement has induced many of the larger packers to establish laundries and provide their workmen with clean outer clothing daily. Personal cleanliness

on the part of the workmen is insisted upon, and to such an extent is this carried that some establishments employ professional manicures who daily treat the hands of girls engaged in handling such products as chipped beef.

At present the Department encounters little trouble in securing compliance with its requirements at new plants ; but, as may well be understood, the first appearance of the new regulations created some consternation. The Department did not desire to stop arbitrarily the meat business of the country, but there was much to be done and little time to do it. By maintaining a firm and rational attitude, however, the Bureau has succeeded in permitting business to proceed in accordance with the law and in bringing about a standard of cleanliness that never before prevailed among the slaughtering and meat-packing establishments of the country.

"Ante-mortem" Inspection. As conducted at present, the first step in actual inspection is the examination of the living animal. The law does not absolutely require this, but places it within the discretion of the secretary. Government inspectors make this examination in the stock-yards or in the pens, alleys, &c., of the establishment by which the animals have been bought and in the slaughterhouse of which they are proposed to be slaughtered, and no animals which have not undergone this examination are allowed to enter the slaughterhouse proper. The pens contain from as low as ten to as high as two hundred animals each. The inspector goes into the pen and looks carefully over each animal. When he finds one that to his mind is not perfectly sound and healthy he or his assistant affixes to its ear a numbered metal tag bearing the words "U.S. Suspect." Such animals are segregated and slaughtered separately from other animals, either before or after the regular course of the killing. If the *post-mortem* examination of an animal does not confirm the suspicions aroused by the appearance of the live animal, and no lesions of disease are found, the tag is taken off and sent to the office of the inspector in charge of the station, who has already been informed of the number of the tag after it was affixed on suspicion, and the carcass is sent along as edible meat. If lesions are found which warrant condemnation, the carcass is sent to the tank, the tag being removed and taken with a report to the office.

During the nine months ending June 30, 1907 (the time covered by the new law), the Bureau inspected *ante-mortem* nearly 51,000,000 animals and held out as suspicious 42,439 of them. Of these suspects 9262 on subsequent *post-mortem* examination were entirely condemned.

The Process of Slaughtering.* Animals which have been found by the inspector on the ante-mortem inspection to be sound and healthy are not marked, but proceed by runways into the slaughterhouse itself

* This description applies especially to the typical large establishment with modern equipment. While methods and details may vary in the smaller houses, the inspection is carried out on substantially the same principles.

and to the killing-floor, which for cattle is usually at the top of the building. The cattle go into narrow inclosures, called "knocking-pens," from one to five to a pen. The knocker walks on a platform above, and with a pole-axe strikes the animal on the head. As it falls stunned the side of the pen opens, the pen-floor tilts, and the animal rolls out on the "beds" a foot or so below. In a few moments a shackle is attached to a hind leg and the animal is hoisted and hangs from the rail of an overhead tramway. In this position the sticker bleeds him by a longitudinal incision that severs the principal blood-vessels in the neck. When the blood is to be used for food purposes it is caught in a numbered receptacle and held until the carcase is further examined. The overhead traveller now carries the animal forward and workmen skin the head and cut it off, placing it on a rack and marking it so that it can be identified should cause for condemnation be found elsewhere in the carcase.

A string of butchers now follow each other in rapid succession. The "leggers" remove the hind legs at the hock and the fore legs at the knee; the "sider" skins the animal down as far as he can work toward the floor; the "caul-puller" cuts the carcase from throat to anus, removing the caul-fat from the abdomen and placing it in a box, which is numbered for identification; another butcher loosens the trachea and saws through the sternum; another butcher skins the buttocks and usually cuts off the tail, which latter is also marked for future identification. The carcase is now hoisted clear of the floor and the "backer" finishes the skinning; at the same time the "gutter" is at work removing the viscera; the rump-sawyer then takes the eviscerated carcase and divides it from the coccyx to the lumbar vertebræ; the "splitter" follows with his cleaver and continues the splitting to the base of the neck; the neck man or hide-dropper finishes cutting the hide from the neck, after which another butcher splits the cervical vertebræ, thus separating the halves. Trimmers then cut off the ragged pieces of flesh, remove the spinal cord, and pump the blood out of the forequarters by rapidly moving the forelegs up and down.

These various processes are mentioned in detail to show the high degree of specialisation attained in the work of slaughtering in the large American establishments as compared with the slower process of this work in other countries.

"Post-mortem" Inspection. At the first exposure of the glands when the head is severed—these being common seats of tubercular infection—a federal inspector makes an examination for evidences of disease, himself cutting into the glands if necessary. Another inspector stands at the elbow of the gutter and, as the viscera are revealed, watches with practised eye for abnormalities, carefully examining and handling the various parts in order that any obscure indication of disease may be discovered (*see* p. 1375). The Bureau requires this inspector to handle the viscera, and, if necessary, to cut into them. This is rapid as well as exacting work, and the head and visceral inspectors frequently exchange

places, or the visceral inspector is relieved by another after two hours' work.

When the inspector finds a diseased carcass he attaches to it by means of a wire and seal a paper tag with the words "U.S. Retained" on it and numbered to correspond with the number on the stub from which it is taken. He sends the numbered stub to the office with his report. The carcass, with the parts that have been separated, none of which is allowed to lose its identity, is now sent directly to a compartment called

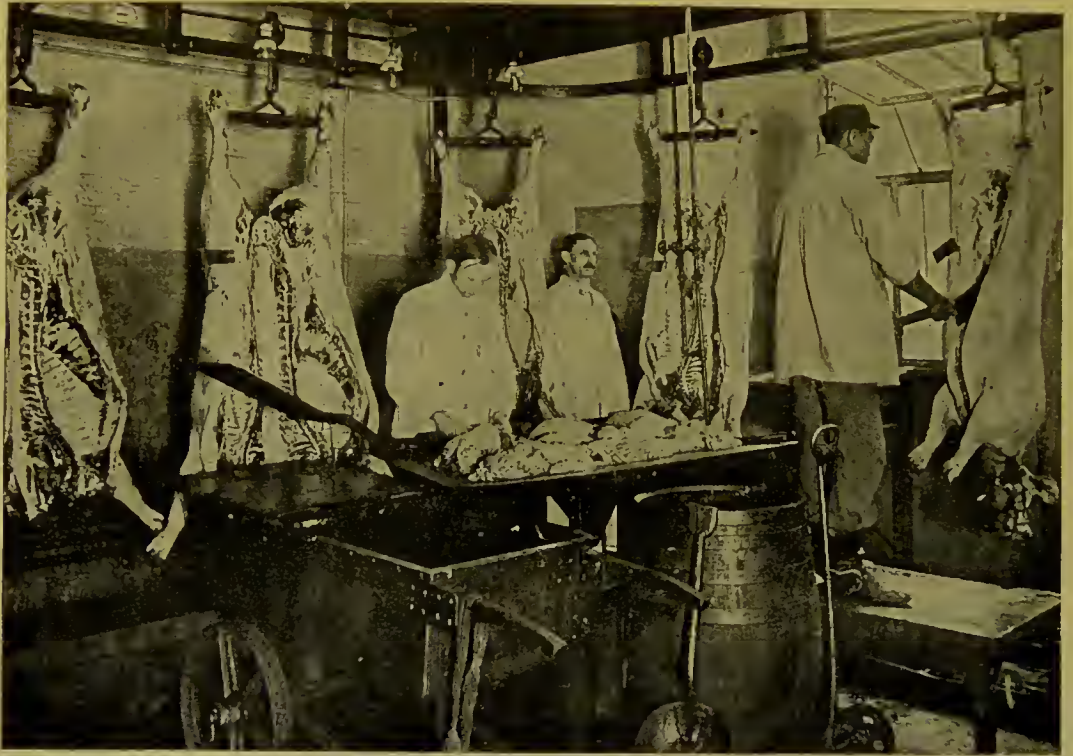


INSPECTION OF BEEF CARCASSES AT TIME OF SLAUGHTER

the "retaining room" (see p. 1376). The Government requires this important room to be rat-proof, well lighted, to have floors of cement, or of metal or brick laid in cement, and to be provided with facilities for locking. The Government also provides a special lock for the room, and the keys remain in the custody of the inspector. At convenient periods the retained carcasses undergo in this room at the hands of other inspectors a more leisurely and careful inspection.

This is the final step in the *post-mortem* examination. The inspectors here have a good deal of personal discretion. Certain definite rules are laid down by the Bureau, but something must be left to the judgment of the inspectors. They must pass upon the question of the extent of the affection and decide whether or not the whole carcass or only parts of it should go to the tank. Not being pushed by the exigencies of

the rapid work on the killing-beds and the necessity of keeping up the never-ending stream of carcasses, they are deliberate and careful in making their examinations and in forming their judgment. Carcasses which they decide to be fit for food they permit to be removed and placed with other healthy carcasses, which have been passed on the first inspection. They take off the "U.S. Retained" tag, return it with their report to the office and stamp it "U.S. Inspected and Passed."



RETAINING-ROOM

In this room carcasses held on suspicion are retained in custody of inspectors for more thorough examination and final decision.

When their examination confirms the suspicious indications of the first examination, however, they stamp conspicuously on the carcass, also on the tag, the words "U.S. Inspected and Condemned." The carcass is removed immediately from the retaining-room under the eye of a Government employee, and goes either to the tank or, if it is not convenient to tank it immediately, to the condemned meat room which, like the retaining-room, is provided with a lock, the key of which is kept by a Government employee, and which is opened only by Government employees. As soon as practicable Government men remove the carcass to the tank, keeping a record of the tag numbers, which they forward with their reports to the office. At houses which do not provide a "condemned room" the carcass is sent directly to the tank. About 25 per cent. of the carcasses retained are condemned,

All carcasses, both fit and unfit, having been removed from the retaining-room, the floors and walls are washed with hot water and disinfected in order that the room may be clean and free from disease infection for the reception of the next batch of retained carcasses.



CONDEMNED MEAT ROOM

Here condemned meat is kept locked until disposed of according to the regulations.

Labelling, &c. Returning now to the killing-floor and to the carcasses with which the inspectors have found nothing unhealthy, the overhead traveller carries the separated halves along out of the way of the other operations, and workmen subject them to thorough washing with very hot water, usually from a hose or from an ingenious combination of hose-pipe and brush, and wipe them dry with clean towels. During

this process the hanging halves slowly approach the chill-room, just before entering which they are marked with the inspection legend in five places or more on each side of beef, usually on the loin, rib, chuck, plate and round. The marking is done by means of a metal or rubber stamp and a purple indelible ink, and the words thus stamped are "U.S. Inspected and Passed," or an abbreviation of these words with the establishment number. The number is one assigned to the house by the Department at the time inspection is begun. It is registered in the Department records, and besides serving as a convenient means of reference it provides a sure method of tracing meat about which questions may subsequently arise.

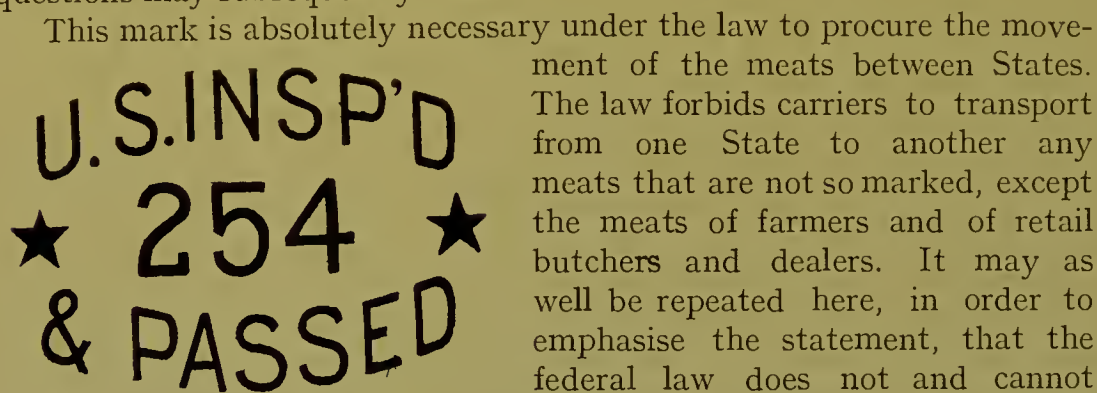


FIG. 1.—FACSIMILE OF MARK PLACED UPON MEAT WHICH HAS BEEN INSPECTED AND PASSED

The form of this stamp is subject to slight change, the essential feature being the words "Inspected and Passed" or an abbreviation thereof.

This mark is absolutely necessary under the law to procure the movement of the meats between States. The law forbids carriers to transport from one State to another any meats that are not so marked, except the meats of farmers and of retail butchers and dealers. It may as well be repeated here, in order to emphasise the statement, that the federal law does not and cannot forbid the carriage of unmarked meats inside a State, so that in the absence of State laws the carriers may, unmolested, carry any kinds of meat from one part of a State to another.

The sides now pass to the chill-room, where they are held at a temperature of about 36° Fahr. for forty-eight hours or more before being further dealt with (*see* Plate, p. 1381). The head, tail, caul, and liver are removed to other parts of the house.

On modernly appointed killing-floors the offal is expeditiously removed by means of chutes. The meat has not during the entire process of slaughter been allowed to touch the floor. When the inspector has detected disease in a carcase and attached the "Retained" tag to it, he orders the butchers, before they proceed to another carcase, to cleanse their hands of all grease and to immerse them in a disinfectant solution, usually bichloride of mercury, 1 to 1000. He sees that all tools and implements used in the suspected carcase are likewise cleaned of grease and immersed in boiling water or in a disinfectant solution. For this purpose disinfecting tanks are now in general use, provided with three compartments—one of hot water to take off the grease, a second with the bichloride of mercury solution, and a third with hot water for final rinsing.

The slaughter of calves, sheep, and goats follows generally the plan described for cattle, sheep often being killed at one end of the beef-killing floors.

Slaughter and "Post-mortem" Inspection of Hogs. The slaughter of hogs, however, is entirely separate and the processes are different. In the larger houses, where 300 to 500 hogs are killed in an hour, the slaughtering proceeds about as follows:

A group of hogs is herded in a pen, through one side of which revolves a huge hoisting-wheel with stout hooks attached near the outer rim.

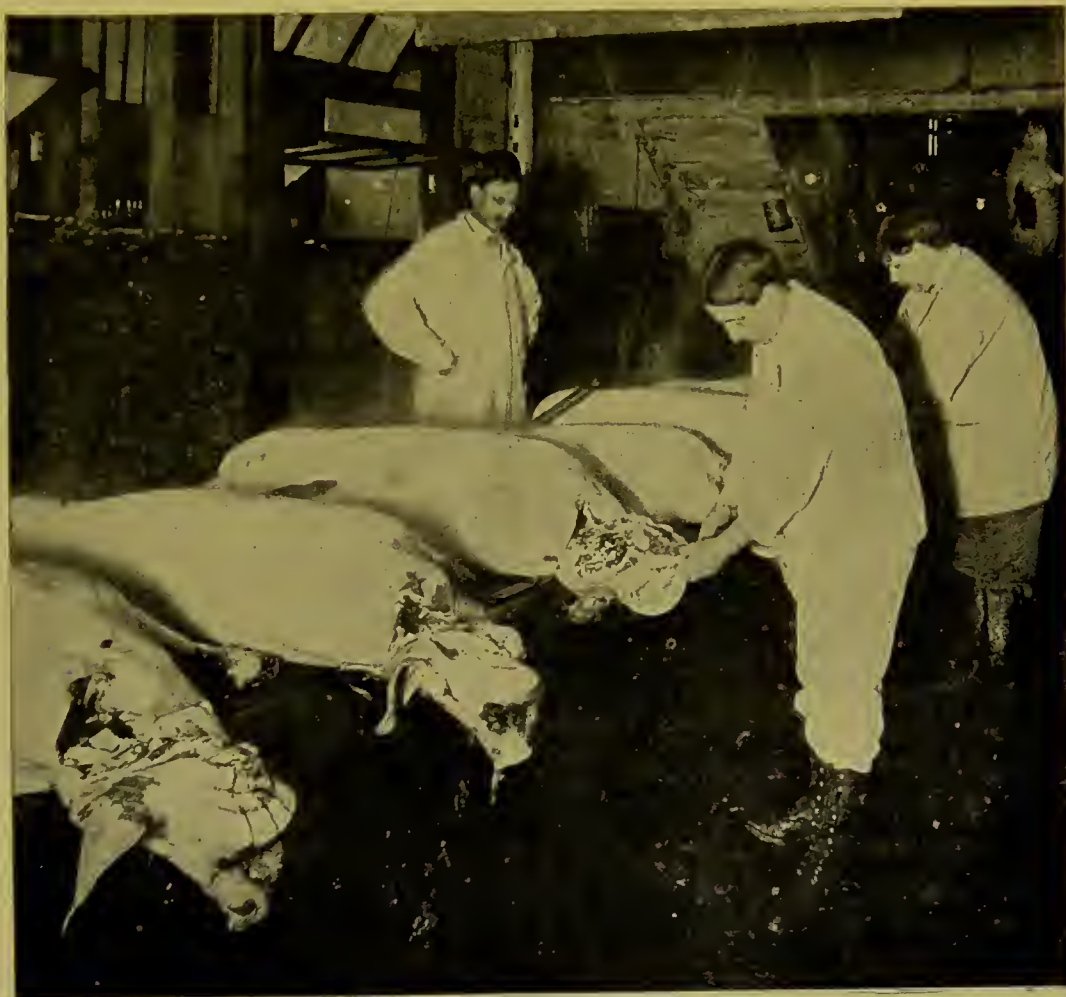


FIG. 2.—HEAD INSPECTION OF HOG CARCASSES
Examining the glands of the neck for tuberculosis.

Boys go into the pen and deftly attach the loop of a chain to a hind leg of the hog and hang the other end of the chain to a hook on the wheel. The wheel slowly elevates the squealing animal, and at the top the chain automatically passes to an inclined rail. The hog, hanging head down, passes to the sticker, who at one stroke severs the larger blood-vessels of the neck. When the animal is dead the carcass is dropped into a great vat of scalding water, where it is poled from one end to the other. Long finger-shaped hooks then lift the body and pass it to an automatic scraping machine, which speedily removes most of the hair. Emerging from this, the carcass drops on to a moving platform, which carries it before a butcher, who almost severs the head, exposing the cervical glands, where about 93 per cent. of the cases of tuberculosis are detected.

Beside the butcher stands a Government inspector, who examines the glands, feels them, and, if necessary, cuts further with his own knife (*see* Fig. 2, p. 1379). Quick and accurate work is demanded here. If he detects disease he marks the carcass—sometimes with a black cross on the fore-quarter, sometimes by severing the ligaments of a fore-leg. Beside him is a pail of disinfectant solution into which he thrusts his knife before the next hog reaches him. The animal thus marked passes on with the others, gambrel-sticks are affixed, and the carcasses are hung on the overhead rail and subjected to washing and further scraping. Here the marked hogs leave their fellows. A Government employee switches them to another rail, attaches the "U.S. Retained" tag, and sends them along to the retaining-room. Those carcasses the head examination of which has shown no disease pass on the regular rail to the gutters, who disembowel them. The carcass and viscera of each animal pass before another skilled inspector, whose duties are as unenviable as those of perhaps any other employee, for he must sit close to his work and handle each set of viscera for evidence of disease. This found, he tags the carcass "Retained" and it is switched to the retaining-room, the viscera likewise being tagged and sent with the carcass.

The carcasses which have thus far passed the head and visceral inspections and show no sign of disease proceed along the rail and are split into halves. Inspectors examine the freshly cut halves, and sometimes find lesions in the bones or muscles, in which case also the carcass is marked for the retaining-room.

The processes from now to the finishing of the carcass are the same as those detailed for cattle. The untagged animals are allowed to pass through the shower-bath, are labelled and go to the cooling-rooms, while inspectors make a closer examination in the retaining-room of those carcasses which have been held as suspicious and determine whether they should be allowed to pass unconditionally, be made into lard, or be sent to the offal-tank.

The Double System of "Post-mortem Inspection." Briefly contrasting the two separate *post-mortem* examinations—that on the killing-floors and that in the retaining-room—we find that the floor inspectors have a very limited discretion. Their orders are to hold any carcass that shows the minutest lesions of disease. The business of both the head and visceral inspectors is to find disease and to stop the carcass then and there for a further inquiry. Once disease is found, or something that looks to the inspector like disease, the carcass must be retained.

On the other hand, the inspectors in the retaining-room take their time. It is their duty to examine into the extent of the disease and, in the light of modern knowledge, to judge whether it is local or general, whether or not it unfits the meat for human food, and whether or not the fat may be allowed to be rendered into lard at a prescribed temperature. By this careful work the inspectors condemned in the fiscal year ending June 30, 1907, more than 50,000 carcasses of hogs out of about 175,000 held by the floor inspectors.

Inspection is adapted to Packing Business. The Department provides a sufficient number of inspectors for this work, and insists that they be furnished with every facility in the way of space and light. Here, as



INSPECTED AND PASSED BEEF IN COOLER

elsewhere, it seeks to accommodate its inspection to the business of the owner of the abattoir. Within reason it will require its men to work as long as his, to begin as early and continue as late. The inspectors will work as fast as the improving appliances of the establishment permit or as its needs demand, and the Bureau will not require the proprietor

to stop his work to send for the inspector or to wait while the inspector returns to his office and makes out an elaborate report—a procedure which is common in the inspection systems of some foreign countries. It requires only that notice be given of the hour that work is to begin, and its men will be on hand and ready to begin. In short, the Bureau of Animal Industry also specialises in its inspection service, and claims to be as modern and as up to date as the finely organised business it supervises.

Meaning of "Disease." Some explanation and caution in reference to the word "disease" as used in the foregoing description may be necessary. The percentage of animals condemned is not the only measure of the efficiency of a meat-inspection system. While it is true that a certain proportion of the animals inspected are practically sure to be diseased and the system should discover, condemn, and destroy them, yet the inspection should be careful and discriminating. No country is so rich that it can afford to throw good meat into the tank. Prices of meat are usually high enough without increasing them by an indiscriminate condemnation of carcasses that are fit for food.

The word "diseased" in connection with meat inspection has a meaning that differs from the generally accepted idea. To the popular mind the thought of eating the meat of a diseased animal is abhorrent, yet it may be stated upon the most eminent medical authority* that "not any single animal used for food in any part of the world would upon microscopic study, be shown to be absolutely free from all infection or lesion." From the standpoint of meat inspection, however, the meat of the great majority of animals is not considered "diseased." Some light infections are common to food animals, but there is no proof that they in the remotest degree depreciate the value of the meat or that the infection is transmissible to man. There may be a strictly localised tuberculosis, consisting, for instance, of an isolated tuberculous nodule in the lungs, in the liver, or in some other portion of the body. Such nodule would make the particular point infected "diseased," from the standpoint of meat inspection, but, the authorities referred to add, "the carcass in general would not be 'diseased,' and there would be no justification in condemning it." It follows, then, that at this point the inspector, in judging whether a carcass is "diseased" or not, must do so "upon the general principles of pathology in its relation to the public health, and not upon any preconceived, exaggerated, or sentimental idea."

Re-inspection of Meats and Supervision of Processes. At this point—with the killing of the animal—previous meat-inspection laws practically stopped. The Department perforce formerly contented itself with placing labels on canned goods stating that the meat was from animals healthy at time of killing.

* Commission of experts appointed by the Secretary of Agriculture to consider and advise concerning those portions of the Department's meat-inspection regulations relating to the disposition of carcasses affected with various diseases and abnormal conditions.

The present law is more inquisitive. It stations its agents at the doors of each of the other departments of the meat establishments, and they demand to be shown the marks indicating the previous satisfactory inspection of all meats that are brought in to be processed in any way. It is well known that many of the larger meat firms not only slaughter and sell carcasses whole, but also cut up carcasses and prepare them in numerous ways, as by curing, pickling, smoking, cooking, canning or by making them into sausage, thus utilising also many of the trimmings from the various parts of the carcass. Many other firms confine themselves to this latter feature of the meat business or to one or more branches of it, buying their meats from the slaughterers. In either case, if the products are to go into inter-State or export trade, Government inspectors permit nothing to come in that has not been inspected and passed; furthermore, having satisfied themselves that the meats have been so passed, they make another careful examination to assure themselves that the meats have not spoiled or become unclean since the inspection at time of slaughter. Such as have undergone changes that make them unfit for food they reject, obliterate the inspection mark and destroy. They then supervise the entire preparation, and require all fixtures and appliances, such as tables, trucks, trays, vats, machines, implements, cans, or containers of any kind, to be clean and kept clean. They see that no drugs, chemicals, or colouring-matters are used, and no preservatives except salt, sugar, vinegar, woodsmoke and saltpetre.* They make an exception in the preservative line, in accordance with the meat-inspection law, to the extent of allowing a manufacturer to pack export meats in accordance with the directions of the foreign purchaser when the use of such preservatives as he prescribes does not violate the laws of the country to which the meat is to be exported. For example, England makes no objection to the use of borax; consequently, meats to be sent to England may be preserved with borax, but they must be prepared in separate rooms and marked with special labels showing that they are for export only.

Sausages, chopped meats and similar products are the subject of careful supervision. As is well known, such products afford a profitable means of disposing of many trimmings that can be utilised in no other way, and they have long been the object of derisive and mirthful comment. The preparation of sausage has, in the past year, undergone a wonderful change for the better. At the outset it was freely predicted that its manufacture was not practicable without the preservatives and colouring-matter which had long been used. The Bureau insisted, however, upon a strict compliance with the law, with the result that manufacturers speedily found it necessary to use more care and cleanliness in preparation, and thus remove at the beginning the causes of the defects which it had been the custom to cover up. The manufacturers themselves are much better satisfied with the new conditions. Their mental attitude

* Saltpetre is allowed pending a very full investigation to determine whether it is harmful.

is illustrated by the remark of a manufacturer in a small way who, in order to comply with the law, had to spend some \$500 on his plant, and who said : " Why, *now* I am glad to have my friends come in and see how I make sausage."

The preparation of the immense output of canned meats is supervised in the same manner. If in the course of any process any of the meat is discovered to be bad it is condemned, or if when packages are boxed for shipment any are discovered to have become unfit, they likewise are condemned. Many processes are necessary between the arrival of the meat and the shipment of the canned product ready for the consumer. Inspectors are present at all times insisting at every point on purity and fitness in the materials and on cleanliness in workers, work-rooms and utensils. As a further safeguard the Department has equipped and manned branch laboratories at the points of the greatest output. Here, with microscope and reagents, special experts examine the salt, the spices, the pickling fluids, the fats and oils used, with a view to detecting any forbidden preservatives and colouring-matters ; in short, they bring to the aid of the inspection service the best efforts of modern bacteriological and chemical science. Samples of the finished product are taken at random from stocks, and are even purchased from retailers at distant points. Even the water used, not only here but also in washing carcasses, must pass analytic scrutiny ; and several houses accustomed to drawing their supply from contaminated sources have had to abandon the practice.

Honest Labelling Required. Having seen that only wholesome meat is used, and that every possible precaution is taken to have it clean—having, to use a famous phrase, inspected the meat " from the pasture to the package "—the inspectors go one step further, and see that the package is properly and honestly labelled. It is something to know that your package contains good meat, and it is something also to know that you buy what you think you buy. The law attains this desirable end by carefully regulating the trade labels that go on the packages. The Department lays down the broad rule that the label shall tell what is in the package. This seems simple, but it has led to many curious complications. It had been usual, for instance, to label many mixtures as " potted ham " or " potted tongue," or " devilled " or " minced " ham or tongue. At present, if these labels appear, the can must contain only ham or tongue, as the case may be. Shoulders used to be labelled " picnic hams " or " California hams." They must now appear as " picnic shoulders " or " California shoulders."

Geographical falsities have also disappeared. We used to see a ham labelled " Westphalia ham " or " York ham " the inference being that it came from Westphalia, Germany ; or York, England ; localities famous for their ham products. These hams now appear as " Westphalia style " or " York style," or " York cut " hams. In the same way we used to see " farm sausage," " Oxford sausage," or " Vienna sausage," accompanied by a picture of the old farm kitchen or of the spires of

Oxford or of the banks of the blue Danube. The word "style" is now insisted upon in each case. Even frankfurter and bologna had to be so modified.

It was quite common to designate lard by a name in which the word "leaf" appeared, often accompanied by a picture of a leaf, the plain inference being that the contents of the can were leaf-lard. Such names and designs no longer occur unless the lard is made wholly from the leaf-fat of hogs. Packages now labelled "pure lard" must be made of sweet, clean, clear hog fat, with the addition of not more than 5 per cent. of lard stearin, in order that the lard may not easily melt in hot weather. "Kettle-rendered lard" must be actually so rendered, and "country lard" is no longer made in the city packing-house, its place being taken by "country-style lard"; that is, lard made in the city usually, but made after the manner of the country product. Veal loaf must now be made wholly of veal. The meat-inspection law gives no control, however, over the canning of poultry or fish.

Tanking of Condemned Meats. Reference has been made to condemning carcasses and meats to the tanks. The law orders the Secretary of Agriculture to destroy for food purposes all carcasses or parts which are found unfit for food. All large establishments provide tanks for this purpose, as in this way the grease may be saved for soap and other non-edible products and the remainder for fertiliser. Tanks vary in size with the size of the establishment and its volume of business. They are of metal and extend through two or more floors of the house. From the nature of their usage they must be very strong and light. Government employees first seal the lower opening of the tank. They then see that condemned carcasses, parts and meat products are put in, along with offal or colouring-matter. They attend to closing and sealing the top, closing and sealing the draw-off valves, see that steam is turned into the tank, and require it to be maintained at a certain pressure for a prescribed time. A pressure of 40 lb. is usually used. This produces a temperature of 280° Fahr., and, maintained for eight to ten hours, is sufficient to liberate all the grease and even to disintegrate the bones. Inspectors watch also the drawing off, which is done by means of valves located at intervals along the sides of the tank, and they mark the containers in which the product is stored and shipped with the word "inedible." All possible precautions are taken to prevent this grease, some of which looks about as good as some lard, from going into trade as edible product.

Farmers and Retail Butchers and Dealers Exempt. Farmers living near the boundaries between States often find a market in the adjoining States for the animals they kill on the farm. Retail butchers and retail dealers similarly situated must also in the course of business send their meats across the line. To inspect at time of slaughter every farm-killed animal is impracticable, as also is an inspection and labelling of each piece of meat sent out by the retailer to his customers. The law, therefore, exempts from inspection the animals killed by the farmer on his

farm and the product sent out by retailers to their customers, providing, however, that should such persons send unfit meat into inter-State commerce they shall be punished by fine or imprisonment. This merely changes the manner of operation. The law here becomes retributive instead of anticipatory. Such traffic is still under the supervision of the Department, and the Department provides a form of certificate which the farmer may fill out for each shipment of meat when he presents the shipment to the carrier. It provides a similar form of certificate which the retailer is obliged to fill out and send along with his shipments across the State line, and, inasmuch as the retailer has usually a fixed place of business, it assigns him an exemption number, which must appear on the certificates. These certificates eventually reach the Washington office. The permission, or exemption, does not permit the persons to whom it is issued to ship unfit meat nor exempt them from the penalties of such action; the whole procedure is merely an effort to bring about in another way the same result—that of securing sound meat—in the business of two classes of dealers whom it seems impossible to reach by the ordinary inspection.

For these two exempted classes State abattoirs should be erected and the State should take up the work where the Federal Government leaves off. Thus the meats of farmers and retailers could be inspected by local State inspectors whose regulations should be as strict as those of the Department.

Safeguards on the Inspection. It thus appears that the meat-inspection law of the United States is an advanced and stringent measure, and the regulations of the Secretary of Agriculture made thereunder fully carry out the intent of the law. If, then, the regulations are enforced, our own country (*i.e.* U.S.A.), as well as those countries which buy our meats, may be assured of a clean and healthy supply of this food. That the regulations are enforced is capable of demonstration by an examination of the reports of the number of animals condemned. Other safeguards, however, are provided. The law promises to fine not less than \$5000 and to imprison for at least a year any man who gives anything of value, even a piece of meat, to a Government employee to influence him in the performance of his duties; it is stricter still with such employees, for it holds over them the menace of similar fine and imprisonment if they accept anything of value, no matter what the intent of the donor or the purpose of the gift may be. It is thus dangerous for the packer to bribe, and it is more dangerous still for the employee to accept.

The Bureau places further obstacles in the way of collusion between inspector and owner by frequent changes at the larger stations of employees from house to house, and by changes, less frequent, of employees from station to station. It is working constantly, also, to secure uniformity in the inspection at all stations. It has a very complex system of reports, and its experts scrutinise these with the view of discovering abnormalities in results and making the proper corrections. Again, practically all the operations of slaughtering and preparing meats are

open to the world, and are, indeed, in the larger centres, one of the sights to which visitors flock. It is well known that accredited representatives of foreign Governments, expert and otherwise, see all the processes of inspection, and more than one has satisfied himself and his Government, sometimes to the surprise of both, that inspection is all that it is claimed to be. Publicists also spend days in the stock-yards and packing-houses, embodying the results of their observations in articles that have recently been of a more favourable tone than they were one or two years ago.

On the whole, it is submitted that no material dishonesty in the inspection can long exist, in view of the above methods and facts, and owing further to the involuntary espionage that each employee undergoes from his fellow-employees, which, while it is not depended upon by the Department, is yet a powerful factor in maintaining a strict integrity in the enforcement of the law.

“Personnel” of the Inspection Force. Whatever weight should be given to a high standard in the *personnel* of the inspection force must also be allowed. The Bureau’s employees are both capable and expert. The men in charge of all stations where slaughtering is done, and the men who do the *post-mortem* work at all stations, are veterinarians. These men must first have successfully completed a three years’ course in veterinary medicine at a reputable veterinary college. The Department recognises only fourteen such institutions, excluding several so-called colleges that aspire to cover this field of knowledge. The Civil Service Commission examines these graduates, and about 50 per cent. of those examined make the required grade of seventy.

For the relief of those who think that everything necessary to the appointment of a man in this service is a letter written to the Secretary of Agriculture by an influential citizen, it may be stated that the Department makes absolutely no permanent appointments except of men whose names are certified to it by the Civil Service Commission. During a period of six months one so appointed is on probation, and if he fails to measure up to the requirements he is dropped. If at the end of this six months he attains his absolute appointment, he is not at once freed of supervision and clothed with full authority to pass or condemn. The force is large, and he is so placed on it under experienced inspectors that he may learn the law and regulations and the methods of their application. A set of rules, supplemented, of course, by some necessary discretion on the part of the heads of the service, govern his advancement in authority and salary. On the latter men rests the burden of inspection. The Bureau holds them responsible, and they well understand that their promotion depends on efficient and faithful service. They have ample opportunity to become experts in detecting diseased animals, and they do. The Department demands all their time during the working day, and a man must be dull indeed if in the days, months, and years spent amid the swift work of the killing-floors he fails to develop a most masterly dexterity in discovering abnormalities in the carcasses that come before him.

The laboratory inspectors constitute another class of employees. They also are selected through civil service examination in the principles of bacteriology and chemistry, with special application to meats.

A third grade of employee is the inspector's assistant. Being under the direction of the veterinarian, he is not required to be himself regularly educated along this line. He examines live-stock, tags, animals, stamps, carcasses, seals cars, patrols the houses at night, superintends the removal and tanking of condemned carcasses—in short, he does everything he can, where expert pathological knowledge is necessary, to relieve and assist the veterinarian.

The meat inspector is a fourth class. He is expert in pickling, salting, smoking and otherwise curing meat. He likewise enters the service through the civil service examinations, and his previous experience is taken into account in grading him. By means of the educated senses of sight and smell he can tell when a piece of meat is unfit, and he knows whether it is irretrievably bad or whether it can be utilised. This class of employees condemned 14,000,000 lb. of meat in the fiscal year 1906-7.

The Bureau selects certain of the most experienced veterinary inspectors and meat inspectors, divides the country into districts, and sends these men travelling through them, visiting every station and every plant. Their visits are unannounced, and they submit reports with recommendations to the Washington office. They are able, out of their wider experience, to instruct the inspectors in charge at the various stations, and their reports are of great value to the Department in its efforts to secure a uniform inspection and to learn of insanitary conditions and have them corrected.

The Need of Supplementing the Federal Inspection by State or Municipal Inspection. After the Federal Government has gone to so much trouble and expense, as elaborated in the foregoing pages, to provide the citizens of this and other countries with a wholesome meat-supply, it becomes the duty of the housewife and the chef to examine the meat after its receipt from the retail dealer to determine if it is still clean and wholesome, and to keep it so until ready to serve. To their assistance can come the local municipal health inspector, who should see that the markets are kept clean and that tainted and soiled meats are condemned.

Indeed it is hoped that the foregoing description of the operation of the federal meat-inspection law has shown its limitations and the consequent necessity that it be supplemented by State and municipal inspection. That the inspection of meats is even more necessary at the smaller than at the larger plants of the country is indicated by the comparative results of cattle inspection at these two classes of plants, as shown in the Table below. The larger plants had inspection July 1, 1906, and appear in the first column. The smaller plants, coming under the inspection after July 1, appear in the second column. Both classes do an inter-State business. It will be seen that relatively twice as many cattle were condemned for tuberculosis at the smaller plants, and nearly twice as many for all causes.

RESULT OF "POST-MORTEM" INSPECTIONS OF CATTLE, JULY 1, 1906,
TO JUNE 30, 1907

	At establish- ments having inspection July 1, 1906.	At establish- ments granted inspection after July 1, 1906.
Total number inspected	7,203,943	417,774
Total number condemned	25,308	2,625
Per cent. condemned of total inspected	0.35	0.62
Number condemned for tuberculosis	17,168	2,137
Percentage of total inspected condemned for tuberculosis	0.25	0.51

It may with reason be supposed that the local slaughterhouse needs inspection even more badly than the small plants now under federal supervision. The boast of "home grown" and "home killed," formerly often heard, is empty. "Home grown" may be all right, but it is sometimes dangerous, as when the local butcher's supplies are drawn from the surrounding dairy herds, since the cattle of such herds are particularly susceptible to tuberculosis. "Home killed," however, in the absence of federal, State or municipal inspection, too often means that the animal is killed without scientific inspection either before or after slaughter. It may be infected with some of the most dangerous and loathsome diseases in the list and the unskilled butcher never know it. Too often, too, this phrase means that the killing is done in a small, poorly equipped slaughterhouse, without running water and without sewerage, and where the word "sanitation" is unheard and unknown.

Again, if the butcher happens to be located in a town where inspected houses are situated, or near such a town or city, it is not unreasonable to suppose that sellers having suspicious-looking animals will send them to him rather than to the inspected houses where they must run the gauntlet of expert examination and the risk of reaching the offal-tank. More than one instance of the kind is known to the Bureau. In fact, a little reflection shows that the whole tendency of the more rigid inspection under federal law is toward more care on the part of buyers—the refusal on their part to buy suspicious-looking animals except subject to inspection—and the consequent diversion of such animals to the local abattoir that has no inspection.

Pork not Examined Microscopically for Trichinæ. While the federal meat inspection in this country is as thorough as a comprehensive law, stringent regulations and a liberal appropriation of money can make it, and the consumer of meats bearing the stamp "U.S. Inspected and Passed" may in general have the comfortable assurance that he is buying and eating products from healthy animals prepared under clean and sanitary conditions and the danger of contracting disease from eating these meats is practically eliminated, yet the fact should not be overlooked that there is one disease against which the meat-inspection legend does not pretend to be a safeguard. For the detection of most of the

diseases affecting meat the human eye needs no assistance. The disease called trichinosis, however, to which hogs are subject, is caused by a parasite so small that the microscope must be employed to detect it. Thorough curing or thorough cooking of the meat kills this parasite. It seems, however, that some European peoples have a habit of eating raw or half-raw pork, and consequently they have suffered from this disease. Very elaborate measures have been taken in some countries to do away with or to lessen the danger. In Germany, for instance, there is an army of inspectors who use the microscope to detect these parasites in pork. These countries some years ago forbade the importation of American pork products unless they had been microscopically inspected. To meet this requirement the Bureau instituted several years ago a system of microscopic inspection of pork intended for shipment to such countries. No microscopic inspection of pork intended for home consumption, however, has ever been made or even contemplated. The Department takes the ground that from the nature of the disease an examination of certain parts of a hog carcass can only minimise and not eliminate the danger.

The parasites, it is true, are usually found, if found at all, in certain parts, as the pillar of the diaphragm, the psoas muscle, the inner aspect of the shoulder or the base of the tongue. Not finding them in these parts by the usual methods, it may be assumed to be probable that they do not exist in the remainder of the carcass. This is, however, only a probability, as they may exist, and even to such an extent as to produce disease if the flesh is eaten raw. Many cases are on record where twenty, even thirty, examinations were made before trichinæ were found; and out of 6329 cases of trichinosis in Germany, between 1881 and 1898, a careful inquiry traced 2042 cases (over 32 per cent.) to meat which had been microscopically examined and passed as free from trichinæ. In view of these facts the Department has regarded it as utterly impracticable to inspect hog carcasses for this disease. It has further taken the view that such inspection—which as formerly carried on for exported products would cost about \$3,700,000 a year if all hogs killed at inspected houses were so examined—would do more harm than good. It would create in the minds of the consumers a feeling of false security, which might lead them to omit the only sure means of escaping danger, namely, to refrain from eating uncooked or uncured pork; and it would thus defeat its very purpose and render the great trouble and expense worse than useless.

Not only has the Department not inspected for trichinæ the pork consumed at home, but it has abandoned recently such inspection of pork products going abroad. It was found that even after our elaborate examination some foreign countries, although requiring our inspection, paid no attention to our certificates, and conducted an examination of their own, on the result of which depended the admission of the products. On the ground, then, that our examination was superfluous, the Department stopped it. Of the principal countries formerly requiring certi-

ificates of this examination Italy and France already have agreed to admit our products without them, and upon the certificate simply of the regular inspection under the present law. It is hoped that other countries will take similar action.

Meat Inspection in European Countries. Those European countries which afford markets for our surplus meats all have more or less effective and interesting systems of meat inspection. While owing to the density of population in several of these countries, and the fact that they are not economically suited to purely pastoral pursuits, it is impossible for them to grow all the meat necessary for their own consumption, yet they slaughter large numbers of animals. Of these countries England offers the most desirable market, and has in fifteen years taken over half our entire exports of meat. Germany and France, in spite of repeated efforts, have been unable to supply their own demands to the extent of bringing prices within reach of the poorer classes, and present the next best market for us. In the countries named efforts toward meat inspection antedate our own by many years, for local decrees and ordinances may be found as far back as the Middle Ages ; but inspection by veterinarians, on scientific principles, and under control of State or federal governments, is comparatively new.

The United Kingdom. In Great Britain it was an offence punishable at common law to sell for human food unwholesome meat, knowing it to be such ; but statutory provisions are now in force, embodied in separate Acts for England and Wales, Scotland, Ireland, and the administrative county of London. The Acts for England and Wales, for Ireland and for London are much alike. In general they empower medical officers of health or inspectors of nuisances to examine at any reasonable time any carcase or meat on sale for human food, and any such carcase or meat that appears diseased, unsound, unwholesome or unfit for the food of man may be seized and carried before a justice, who may condemn it and order it destroyed. This is, of course, not meat inspection in the modern sense of the term. The meat is not inspected at slaughter. This system results in condemning great quantities of meat, but in distinction to our own system it is retrospective rather than preventive. The Scottish Public Health Act is more specific, for it provides for inspection by veterinarians, both *ante-mortem* and *post-mortem*, and inasmuch as the country is well supplied with public abattoirs under municipal ownership and control, the meat-inspection system of that country more nearly approaches our own, although without our elaborate system of marking.

France. Meat inspection in France, as well as in Germany, may be divided into two periods, the first of which embraces the time when inspection of meat was merely an incident of the sanitary regulation of traffic in food products, and the second period, which is comparatively recent, when the inspection of animals and of meats intended for human food was placed under the more scientific supervision of veterinarians. In France provision for a veterinary supervision of slaughter at abattoirs

was authorised in 1882. Previous to that time inspectors for public slaughterhouses generally were recruited from among butchers and other persons who had some knowledge of animals and meats. The meat-inspection service at the present time is under the general supervision of the ministry of agriculture, and under the more immediate control of the police prefectures. It is based on a series of laws, ministerial decrees and regulations, rather than on a concrete law covering the entire subject as in the United States and Germany. The municipal authorities also issued special regulations which had as their object the total or partial seizure of unwholesome meats or the exclusion from abattoirs of animals unfit for food. Severe criticisms of the meat inspection of France have been written by eminent French authorities. Inspection in private abattoirs is not practised generally in France, only four Departments having made any efforts in this direction, and where such inspection is in force it does not come up to the standard maintained in public abattoirs.

Germany. The first imperial meat-inspection act in Germany was passed in June 1900, and went into effect in its entirety in April 1903. Previous to that time no general law governing the inspection of live stock and meats existed in the empire. A law passed in 1879 for the regulation of traffic in food products, and also the imperial code of penal laws, contained regulations for the protection of human health from unfit meat brought into trade, but these laws simply provided for criminal procedure after the deed, and not for measures to prevent the sale of meat unfit for human food. Some individual States, especially in southern Germany, and the free cities of Hamburg, Bremen, and Lübeck, had decrees providing for inspection. The imperial meat-inspection law has made inspection practically compulsory, although exception is made in the case of private slaughter. Notwithstanding the strict conditions of this law, which is especially enforced against foreign meats and meat-food products, it is optional with the consumer whether he shall eat the meat of diseased animals, the law requiring simply that an examination shall be made and that the consumer must be notified regarding its condition, and only meat which according to the German standard cannot be rendered harmless by cooking, steaming, or pickling can be condemned and destroyed. Imported meats must be inspected by an approved veterinarian. In the case of fresh meat, each individual carcase must be inspected, and when the presence of harmful preservatives is suspected it must undergo a chemical analysis. The flesh of hogs is microscopically examined to determine the presence of trichinæ.

The inspection service of Germany is divided into districts, for each of which at least one veterinary inspector and one assistant inspector are appointed. In Berlin, where the largest slaughtering takes place, and which comprises one district, sixty-three veterinary inspectors were employed in the year 1904-5. In addition to the district veterinary inspectors there is a large force of inspectors who are not veterinarians, but who examine animals and meat and pass judgment on them when

no signs of disease are manifest. In the larger districts the inspectors devote all their time to the work, but in the smaller districts the inspector is called upon to make inspections at private and other slaughterhouses, and as a rule his time is not fully occupied. In the rural districts the meat inspector may also inspect for trichinæ, while in the large districts such inspection is done by a special force of microscopists. The number of inspectors for trichinæ for the whole empire has been variously estimated at from 25,000 to 100,000. In Prussia alone, according to official statistics, there were 28,108 inspectors, and the total cost of inspection for trichinæ in the empire was estimated at \$3,275,000.

Of the meat-inspection systems of European countries, that of Germany is the most elaborate. In Germany the tuberculin test shows from 25 to 40 per cent. of the cattle to be tuberculous. *Post-mortem* examinations at some of the slaughterhouses of the empire confirm this percentage. In the United States the tuberculin test shows from 2 to 10 per cent. of the cattle to be tuberculous. The wide variation in the figures in both cases is due to the fact that different localities are differently infected. In the United States the older and more thickly populated portions of the country are as a rule the worst infected, especially those localities where there are numerous dairy herds, for this disease prevails to a very much greater extent among dairy cattle than among others. The least infected cattle are naturally those from the ranges, and the larger part of the cattle slaughtered at the establishments under Government inspection comes from these ranges.

So many different factors enter into the question that it is not possible to make a perfectly satisfactory comparison of the inspection systems of Germany and the United States. Germany, as shown, has from five to seven times as much tuberculosis in cattle as the United States. Her law runs throughout the empire and covers the small slaughterhouses, while that of the United States applies in practice to only the better class of animals—those killed for the inter-State and export trade, coming mostly from the ranges and slaughtered at the larger houses, and has no control of the insanitary local abattoir. Bearing these facts in mind, it is interesting to note that during the year ending June 30, 1907, the inspection system of the United States condemned 0.36 per cent. of the cattle inspected, while that of Germany in the year 1905 (the last year for which figures are available) condemned 0.97 per cent, relatively only about three times as many; and that the United States condemned 0.33 per cent. of the total number of hogs inspected as compared with 0.12 per cent. condemned by Germany.

CHAPTER XI
CANADA
REGULATIONS GOVERNING THE INSPECTION OF
MEATS, 1907

1. In these regulations, unless the context otherwise requires :

- (a) " Act " means the " Meat and Canned Foods Act " ;
- (b) " Minister " means the Minister of Agriculture ;
- (c) " carcasses " means the carcasses of cattle, swine, sheep, goats or poultry ;
- (d) " establishment " means any abattoir, packing-house, or other premises in which such animals are slaughtered, or in which any parts thereof or products thereof are prepared for food for export, or are stored for export ;
- (e) " export " means export out of Canada, or out of the province in which the establishment is situated to another province ;
- (f) " food " includes every article used for food or drink by man, and every ingredient intended for mixing with the food or drink of man for any purpose ;
- (g) " inspector " means an inspector appointed under the Act ;
- (h) " regulations " means regulations made under the provisions of the Act ;
- (i) " portions " means the usual cuts, known as sides, quarters, shoulders, hams, bellies, &c., and also entire organs, such as tongues, livers, hearts, &c.
- (j) " products " means food prepared from carcasses or portions ;
- (k) " Canada Approved " means that carcasses, portions, or edible products so marked have been inspected and found fit for food ;
- (l) " Rejected " means that carcasses or portions so marked may be rendered into lard or tallow ;
- (m) " Condemned " means that carcasses, portions, or products so marked are unfit for food, and shall be destroyed for food purposes.

2. The following regulations shall not apply to any establishment within the meaning of the Act in which the sole products prepared for food for export, or stored for export, are fish, fruit, or vegetables.

3. Every animal slaughtered, and all carcasses, or products therefrom prepared for food purposes, shall be inspected, and handled as required, in these regulations.

4. The owner or manager of any establishment slaughtering animals, or preparing any carcase or portion thereof for food purposes, and which is intended for export trade, may make application to the Minister for

inspection, in accordance with the provisions of the "Meat and Canned Foods Act." Application shall be in writing, and shall give full particulars as to location, capacity per day, species of animals killed, quantity of meats and products thereof exported. Forms for application will be supplied by the Veterinary Director General on request.

On receipt of an application as above, the Minister may, after ascertaining that the facts are as stated, and that the sanitary condition of the establishment applying is satisfactory, make provision for inspection in accordance with the terms of the "Meat and Canned Foods Act."

5. In order that a distinctive mark may be given all carcasses, portions, or products thereof, slaughtered or prepared for food at every establishment at which inspection is maintained, the Minister will assign to such establishment a number, which shall be used with the Crown and the words "Canada Approved," to mark all carcasses, portions, or products thereof, passed as fit for food. Branch establishments may use the same number by placing a serial letter in conjunction with it.

6. At establishments for which inspection is provided the Minister shall appoint an inspector to take charge of the inspection, detailing also such assistants as he may deem necessary.

Inspectors shall, when in the performance of their duties, wear a badge provided by the Department of Agriculture.

7. Establishments at which inspection is maintained shall furnish suitable accommodations for inspectors, such accommodations to include the exclusive use of a room, or rooms, suitable for office purposes, together with such fittings as may be required for the proper conduct of the business of the department connected with such establishment.

The inspector in charge shall be kept fully informed by the management of all details regarding the actual operation of the establishment, and such operation will not be permitted under any circumstances without the knowledge of the inspector in charge and either under his supervision or that of an inspector detailed by him for that purpose.

Every reasonable arrangement must be made as regards hours of work and other details, for the mutual convenience of the management and the officers of the department.

This section shall have special reference to small establishments situated in the same town, or in close proximity to each other, when two or more are under the supervision of the same inspector.

8. All establishments having inspection shall be suitably lighted and ventilated. All appliances, such as tables, trucks, vats, machines, containers, &c., must be kept clean and sanitary. All steps in the course of production shall be carried on carefully and with strict cleanliness, and under the supervision of an inspector.

Rooms in which carcasses, parts or products thereof are prepared shall be frequently whitewashed or painted, and shall contain facilities for cleansing all equipment.

Employees of the establishment engaged in handling foods must be free from tuberculosis or other communicable diseases, and must observe

such general rules as to sanitation as may be deemed necessary by the inspector in charge.

No carcasses or parts thereof entering into the production of food, shall be allowed to come in contact with anything that will contaminate or deteriorate them.

Coverings used by employees to protect their clothing or persons shall be of material easily cleaned.

Dressing-rooms and lavatory accommodations shall be ample, sanitary, and fully equipped, and shall be entirely apart from any room or compartment used for the storing or production of food.

The yards and pens belonging to, or used in connection with, any establishment shall be maintained in a clean, comfortable, and sanitary condition, and shall not be used for the fattening of swine or other animals, nor shall any offal or other refuse from the establishment be utilised for feeding purposes.

Inspectors in charge of each establishment will suggest to the manager or owner any needed changes in the sanitary conditions, and will be required to report weekly to the Veterinary Director General as to the general observance of this section.

Inspectors are authorised to refuse inspection if sanitary conditions are not observed.

9. Inspectors in charge of establishments will be required to furnish to the Veterinary Director General such daily and other reports as may be required.

Proprietors of establishments shall furnish to the inspector in charge, upon request, accurate information regarding receipts of stock, shipments, and products on hand.

10. Every animal about to be slaughtered shall be examined by a veterinary inspector in the yards, or pens, of the establishment, prior to entering the killing floor. Such establishments shall provide suitable facilities for separating healthy animals from those showing symptoms of or suspected of being affected with disease.

Only such animals as are found on inspection to be healthy shall be slaughtered at the regular kill.

Animals found diseased or suspected of being diseased shall be tagged in the left ear with a metal tag, bearing the word "Held," and killed separately at the end of the regular kill.

Animals known as cripples and downers shall be tagged "Held," and may be slaughtered at the regular kill or otherwise, upon permission of the inspector in charge.

11. Inspectors shall make a thorough inspection at the time of slaughter of the carcass and all portions thereof. If the examination reveals no grounds for detaining or condemning the same, the inspector shall pass and mark such carcasses or portions as required in Section 13.

If the inspector deem it necessary to hold any carcass or part thereof for further examination he shall mark the same "Held," as required in Section 22.

Should the inspection show the carcass or any portion thereof to be in any way unfit for food, the inspector shall at the time of inspection mark such carcass or portion thereof with a "Condemned" tag as provided in Section 24.

Carcasses which may be rendered into lard or tallow shall be marked "Rejected," but only after all diseased parts have been removed as provided in Section 23.

No part of any carcass shall be removed or so placed as to prevent its ready identification, except with the authority of the inspector.

12. The entire carcass of any animal affected with any of the following diseases or conditions is to be condemned and tanked as hereinafter provided :

- (1) Anthrax.
- (2) Black Leg.
- (3) Pyæmia and Septicæmia.
- (4) Rabies.
- (5) Tetanus.
- (6) Malignant Catarrh.
- (7) Hog Cholera.
- (8) Swine Plague.
- (9) Texas Fever.
- (10) Parasitic ictero-hæmaturia.
- (11) Inflammation (chronic or acute) of any of the following tissues :
Lungs, pleura, intestines, peritoneum or uterus.
- (12) Traumatic Pericarditis.
- (13) Jaundice.
- (14) Uremia.
- (15) Sexual smell.
- (16) Parturition (carcasses of animals having within ten days given birth to young, if showing any signs of septic infection).
- (17) Immaturity. Every animal under three weeks of age.
- (18) Tapeworm cysts. *Cysticercus bovis*. *Cysticercus cellulosæ*.
- (19) Emaciation or Anæmia.
- (20) Tuberculosis. Every carcass affected with tuberculosis and emaciated shall be rejected, together with all other carcasses affected with tuberculosis. Except in those cases in which the lesions are small, encapsulated, or calcified, and confined to the following tissues :
 - (a) The cervical lymphatic gland and two groups of the visceral lymphatics in the thoracic, or abdominal cavity ; for instance, the cervical, bronchial, and mediastinal glands, or the cervical, hepatic and mesenteric glands.
 - (b) The cervical lymphatics, one group of visceral lymphatics and one organ in the thoracic or abdominal cavity ; for instance, the cervical, bronchial, and mediastinal lymphatics and the liver.
 - (c) Two groups of visceral lymphatic glands and one organ in the thoracic or abdominal cavity ; as for instance, the bronchial

and mediastinal lymphatics and the lungs or the mesenteric and hepatic lymphatics and the liver.

- (d) One group of visceral lymphatics in the thoracic and abdominal cavities and the cervical glands; as the bronchial, mesenteric, and cervical lymphatics, or the mediastinal, hepatic, and cervical.
- (e) Two groups of visceral lymphatic glands in the thoracic cavity, and one group in the abdominal cavity, or *vice versa*; as for instance, the bronchial, mediastinal and the hepatic, or bronchial mesenteric and hepatic.
- (f) Carcasses affected as above in which the lesions are in a state of caseation, or show softening centres, and those in which lesions are more numerous than above specified, yet are slight, calcified, or encapsulated, may be rendered into lard or tallow after the diseased parts are removed. Such carcasses must be cooked by steam at a temperature not lower than 220° F., and for not less than four hours.
- (g) Carcasses in which the cervical lymphatics, one organ, and the serous membrane in either the thoracic or abdominal cavity, as the cervical glands, lungs, and pleura, or the cervical, liver, and peritoneum. Carcasses so affected may be rendered into lard or tallow. Such carcasses must be cooked by steam at a temperature not lower than 220° F., and for not less than four hours. Every head, organ or part showing lesions of tuberculosis must be "rejected" or "condemned."

(21) Actinomycosis and actinobacillosis, except when the disease is confined to the seat of primary infection and the carcass is well nourished and otherwise healthy. The head, including the tongue, or other organ which may be the seat of primary infection, must be destroyed.

(22) Portions or products of any carcass showing the following lesions:

- (a) Decomposition.
- (b) Abscesses, bruises, tumours, parasites. Every organ or part of carcass showing an abscess, or tumour, or which is badly bruised or affected with parasites, shall be "condemned"—(livers, flukes, &c.).

Any condition not herewith described must be dealt with as the judgment of the inspector directs.

The presence at any establishment of an animal affected with or showing symptoms of any contagious or infectious disease, must be promptly reported to the Veterinary Director General by the inspector in charge, who shall take immediate steps to ascertain the point of origin and address of former owner, and place from whence such animal or animals were shipped, at the same time taking such further action under the provisions of the "Animal Contagious Diseases Act" as he may deem necessary and advisable.

Animals in an advanced stage of pregnancy shall be tagged "Held." They shall not be slaughtered at that time nor for ten days after parturition, but may be removed for stock or dairy purposes provided they

are not affected with and have not been exposed to infectious or contagious disease. Before such animals are released, permission shall be granted by the inspector in charge and "Held" tag removed.

13. Every carcase found to be fit for food shall be stamped by the inspector according to the instructions of the Veterinary Director General. Such stamps shall show the Crown and the words "Canada Approved," and the establishment number.

Every portion or organ of any carcase previously inspected, which is to leave the establishment for export trade, shall have a stamp or mark bearing the Crown and the words "Canada Approved," and the establishment number. This wording or an abbreviation thereof may be included, with the approval of the Veterinary Director General, in any branding iron or instrument used for the purpose of branding or burning a trade-mark or the packer's name upon any portion of swine. This wording shall be legible, and shall be accepted in lieu of other inspection marks. The marking and stamping of all carcasses, portions or products shall be supervised by an inspector.

14. Sausages, canned meats and portions intended for cure, shall be prepared only from carcasses or portions which have been marked "Canada Approved," and which on reinspection are found fit for food. Their preparation and packing shall be supervised by an inspector, who shall not allow any fixture, appliance or receptacle to be used in the production of food products unless the same is clean and sanitary.

No food product shall contain any deleterious substance, drug, dye, or preservative.

With the object of preventing the use of deleterious substances, the inspector shall as often as deemed advisable procure samples of the preservatives used, as also of the different food products during their preparation, or after the same have been prepared, and shall submit them without delay to the department for analysis.

Inspectors in charge will be furnished by the department with the names of harmless preservatives and dyes which may be used; the addition of others will prevent the approval of the product.

15. The proprietor or manager of an establishment shall upon request of the inspector in charge, furnish to him free of charge any sample or samples of preservatives, food products, or any ingredient used in the preparation of foods. Samples so obtained must be sealed, labelled, and marked with a description of the same, together with the inspector's name, and the date, and forwarded at once to the Veterinary Director General.

16. All portions, or products of carcasses, prepared for food and packed in cans, or similar receptacles, or in any package, shall be subject to inspection during the whole course of preparation and packing; and all such cans or receptacles shall be marked, unless otherwise ordered by the Governor in Council, with:

- (a) The initials of the Christian names, the full surname, and the address, or, in case of a firm or corporation, the firm or corporate name and address, of the packer;

- (b) A true and correct description of the contents of the package. No can, receptacle, or package subject to inspection shall be marked with anything which falsely represents the quantity, weight, contents, or date when contents of same were marked.

These requirements shall be embodied upon a trade label, duly approved by the Minister, having thereon in addition to the Crown and the name and address of packer and description of contents, the Crown and the words "Canada Approved," and the number of the establishment Letters contained in such label shall be of uniform size.

A copy of every label used by each establishment shall be filed with the Department of Agriculture.

In cases where a large supply of trade labels are on hand, a sticker furnished by the department may be used on such labels, having thereon the Crown and the words "Canada Approved," and the establishment number. Such stickers may be affixed only under the supervision of an inspector.

17. When carcasses, portions, or products thereof are shipped for export from any establishment, in any case, or covering, concealing wholly or partially the contents, the case or covering shall have a numbered stamp having thereon the Crown and the words "Canada Approved." No other reference to inspection under the "Meat and Canned Foods Act" shall be placed upon any cover so marked.

Proprietors of establishments shall supply all necessary help to affix labels and stamps, under the supervision of an inspector.

18. After the contents of any package or covering bearing a stamp having thereon the Crown and the words "Canada Approved" have been removed, the stamp shall forthwith be destroyed.

19. No carcasses or portions thereof other than those bearing the words "Canada Approved," and which have been inspected and found fit for food, shall be allowed to enter any establishment at which inspection is maintained, except as hereinafter provided :

- (a) Carcasses, portions, or products thereof shipped from the United States, and marked "U.S. Inspected and Passed," but to guard against possible deterioration, such carcasses, portions or products shall be reinspected and dealt with accordingly ;
- (b) Carcasses, portions, or products thereof shipped from other countries, if properly certified, whether by marking or otherwise, to have passed Government inspection before leaving the country of origin, but such carcasses, portions, or products shall be reinspected and dealt with accordingly ;
- (c) Dressed carcasses, with the head, heart, lungs, and liver, held by their natural attachments, such carcasses to be inspected before entering the establishment, and if found fit for food to be marked with the Crown and the words "Canada approved" ; if found to be diseased or otherwise unfit for food, to be dealt with as provided in the regulations ;
- (d) Carcasses, or portions, shipped from another establishment at

which inspection is maintained, when the shipment is accompanied by a certificate from the inspector in charge of such establishment. Such certificate shall show number of carcasses or portions, together with car number and its initials.

In case of carload shipments, cars should be sealed on both sides, and seals shall be broken only by an inspector or his assistant.

- (e) No carcasses, portions, or edible products thereof shall be received at any establishment having inspection, unless the inspector in charge or his assistant has been notified.
- (f) Carcasses, portions, or products thereof, shall be permitted to enter establishments only through such doors, passages, or other means of entrance as are designated for that purpose, and at such times and under such conditions as may be approved by the inspector.

20. Inspectors may at any time reinspect any carcass, portion or product thereof, which has been prepared, stored in or returned to any establishment, or is about to be shipped therefrom. If upon reinspection such carcass, portion, or product is found to be unfit for food, by reason of adulteration or deterioration, it shall be marked and disposed of as provided in the regulations.

21. In every establishment there shall be set apart special rooms or compartments, one to be known as the "Detention" room, in which all carcasses, portions, or products thereof, marked "Held," shall be placed until finally inspected. The other room shall be known as the "Rejected" room, in which shall be placed all carcasses, portions, or products thereof marked "condemned" or "rejected." Both rooms shall be well lighted, and so constructed and situated that they may be easily cleansed and disinfected. The doors shall be so fitted that they may be locked, with locks supplied by the Department of Agriculture, and the inspector shall retain charge of such locks and their keys.

If, after final inspection, in the detention room, of any carcass, or portion marked "Held," the same is found fit for food, the "Held" tag shall be removed, and the carcass, or portion, stamped as required in Section 22. Any carcass or portion marked "Held," which on final inspection is found to be unfit for food, shall be marked as provided in the regulations, and removed at once to the "rejected" room.

22. If at any time during the slaughter of an animal, or the production of any foods therefrom, the inspector deems it necessary to further inspect the carcass, portion or products, he shall firmly attach thereto a black paper tag, numbered, and having thereon the word "Held." In all cases where the inspector making the *post-mortem* examination is not the same individual as the one making the final inspection, the former shall furnish to the latter a description of the animal, disease, or symptom thereof and the number of tag. If on final inspection, which shall be made not less than twelve hours later, the carcass, portion, or product, is found fit for food, the "Held" tag shall be removed and carcass, portion, or product marked "Canada Approved."

Should inspection show the same unfit for food, it shall be immediately marked as provided, and removed to the "rejected" room for final disposition.

Carcases showing diseased or injured portions which cannot be readily removed at the time of slaughter, shall be marked "Held," and placed in the "detention" room until after carcase is chilled, when the inspector may, if he sees fit, remove and mark the affected portion "Condemned" and the remainder of the carcase shall be marked "Canada Approved."

23. Each carcase, or portion thereof, found on inspection or re-inspection to be unfit for food purposes, but the condition of which is such as to allow of its being rendered into lard or tallow, shall be marked with a numbered red paper tag having thereon the word "Rejected."

All carcasses or portions so marked must be cooked by steam at a temperature not lower than 220° F., for not less than four hours.

24. Upon each carcase, portion, or product thereof, found on inspection, reinspection, or during the process of production, to be in any way unfit for food, there shall be placed a black paper tag bearing a number and the word "Condemned." All animals found dead, or in a dying condition, upon the premises of any establishment, shall be tagged in the right ear by an inspector with a metal tag bearing a number and the word "Condemned." Such tag shall under no circumstances be removed except by the inspector supervising the final disposition of the carcase, portion, or product so marked, who shall report as to its disposition.

25. Every establishment having inspection shall be equipped with facilities satisfactory to the department for the tanking of all diseased carcasses, portions, or products thereof. They must be so placed or operated as to cause no odours or fumes to pervade any room wherein carcasses or products thereof are prepared.

All carcasses, portions, or products thereof, which have been marked "condemned" shall be tanked as hereinafter provided, under the supervision of an inspector. Tanks shall be sealed and seals broken only by the inspector, who shall see that the process of tanking is sufficiently thorough to render impossible the utilisation of any of the condemned carcasses, parts or products in any way for human food. As a further precaution with the above object in view, the Minister may authorise the use by inspectors of any colouring or other matter which may be considered suitable. Establishments not having the necessary equipment for tanking will be granted reasonable time in which to provide the same. Until then, inspectors will slash carcasses or portions thereof, in such a way as to render them unsaleable and easily identified, and will in addition be required to supervise their burning or proper burial.

26. No clearance shall be granted any vessel carrying any carcasses, portions, or products thereof (except ship stores), unless said carcasses, portions, or products have been duly marked with the Crown and the words "Canada Approved." As evidence that this requirement and the provisions of the Act have been complied with, it shall be deemed

sufficient, if a certificate signed by the shipper or by the inspector in charge of the establishment from which the shipment originated has been filed, at the time of filing the manifest, with the Customs authorities by the master, owner, or agent of the vessel. Such certificate shall certify that the carcasses, portions, or products have been duly inspected and marked according to the provisions of the Act, and shall also contain thereon the number of carcasses, portions, or packages, weight, description, shipping marks, shipper, consignee, and destination. In the event of the certificate being furnished by the shipper, it shall be in the form provided for similar shipments in Section 27.

On request of the owner of an establishment, the inspector in charge shall issue a certificate in triplicate covering any carcasses, portions, or products thereof, which have been inspected and marked with the Crown and the words "Canada Approved," and which are to be exported. Such certificates shall be issued in serial numbers. The original and duplicate shall be given to the shipper; the original to be attached to the bill of lading accompanying the shipment for the information of the Customs authorities.

27. When any carcase, portion, or product thereof intended for human food is offered for transportation, for export, the person, firm, or corporation shipping the same shall fill out a certificate in duplicate, in one of the following prescribed forms, which shall be delivered to the common carrier or other person to whom such shipment is offered; and no common carrier or other person shall transport or accept for transportation for export any carcase, portion, or product thereof intended for human food, until such certificate in duplicate has been duly made and signed by the shipper.

(1) To be used when shipment consists of duly inspected and marked carcasses, or parts, or edible products thereof:

	..... 19
Name and address of shipper	
Name and address of consignee	
Name of carrier	
I hereby certify that the following described shipment of carcasses, parts, or products thereof, has been duly inspected and marked with the Crown and the words "Canada Approved," according to the "Meat and Canned Foods Act," and that the articles comprising it have not been tampered with or treated in any way other than by smoking since they were so marked, and that they are at this date wholesome and fit for human food.	
No. of packages	
Weight	
Description	
Shipping marks	

.....
Signature of Shipper.

(2) To be used when shipment is offered by a retail butcher or dealer :

.....19
Name and address of shipper
Name and address of consignee
Name of carrier
I,
hereby certify that I am a retail butcher, and that the following described carcasses, parts, or products thereof were from animals slaughtered upon my own premises, and are at this date wholesome and fit for human food.
No. of carcasses or parts
Description
.....
Signature of Shipper.

(3) To be used when shipment is made by a farmer :

.....19
Name and address of shipper
Name and address of consignee
Name of carrier
I,
hereby certify that I am a farmer, and that the following described carcasses, or parts thereof, were from animals owned by me and slaughtered upon my own premises, and that at this date the same are wholesome, and fit for human food.
No. of carcasses or parts
Description
.....
Signature of Farmer.

28. All certificates must be made in duplicate, and original shall be filed by the initial carrier and the duplicate forwarded by him to the Veterinary Director General.

29. Way bills, transfer bills, running slips or conductors' cards accompanying any shipment of carcasses, portions, or edible products thereof shall have stamped thereon, or attached thereto the following certificate :

In case of duly inspected and marked carcasses, parts or edible products :

“ Shipment inspected and marked ‘ Canada Approved,’ as evidenced by shipper’s certificate on file with initial carrier.
“ Railroad company
.....
“ Agent.”

In case of shipments made by retail butchers or farmers.

“ Uninspected as evidenced by shipper’s certificate on file with initial carrier.

“ Railroad company

.

“ *Agent.*”

30. All carcasses, portions, or edible products, stored, packed, or in cure at any establishment on September 3, 1907, shall be inspected, and any found unfit for food shall be marked “ Condemned.” Those found fit for food shall not be marked “ Canada Approved ” until such time as the carcasses, portions, or products are ready for shipment, and upon reinspection at that time are found wholesome.

31. No person shall apply the words “ Canada Approved ” or any word or words of like meaning or effect, to any article subject to inspection under the Act or to any package containing the same, except under direction of an inspector or with his approval or consent.

CHAPTER 27

AN ACT RESPECTING THE INSPECTION OF MEATS AND CANNED FOODS

[*Assented to April 27, 1907*]

HIS MAJESTY, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows :

1. This Act may be cited as *The Meat and Canned Foods Act*.

2. In this Act, unless the context otherwise requires :

(a) “ carcasses ” means the carcasses of cattle, swine, sheep, goats, or poultry ;

(b) “ establishment ” means any abattoir, packing-house, or other premises in which such animals are slaughtered, or in which any parts thereof or products thereof, or fish, or fruit, or vegetables, are prepared for food for export or are stored for export ;

(c) “ export ” means export out of Canada, or out of the province in which the establishment is situated to another province ;

(d) “ food ” includes every article used for food or drink by man, and every ingredient intended for mixing with the food or drink of man for any purpose ;

(e) “ inspector ” means an inspector appointed under this Act ;

(f) “ Minister ” means the Minister of Agriculture ;

(g) “ regulations ” means regulations made under the provisions of this Act.

3. All animals intended for slaughter in any establishment shall be inspected as provided by the regulations.

(2) No animal shall be allowed to enter the parts of an establishment where slaughtering is carried on, unless it has undergone such inspection and been found to be healthy and fit for food.

(3) Every animal affected, or suspected of being affected, with contagious or other disease, shall be slaughtered under the supervision of the inspector and be disposed of as provided by the regulations.

4. All carcases and portions thereof of all animals, wherever slaughtered, intended for export, shall be inspected as provided by the regulations.

5. Unless the Minister otherwise directs, upon the report of an inspector, animals owned by farmers and slaughtered by them on their own premises, and animals slaughtered by retail butchers on their own premises, shall not be subject to inspection under the provisions of this Act.

6. Every carcase, or portion thereof, found to be healthy and fit for food, shall be marked by the inspector in such manner as is provided by the regulations ; and the carcase, or portion thereof, may then be dealt with as the owner thereof sees fit, subject to the further supervision of the inspector.

7. Every carcase or portion or product thereof prepared for food in any establishment and packed in cans or similar receptacles, or in any package whatever, shall be subject to inspection during the whole course of preparation and packing ; and after all the requirements of this Act regarding inspection have been complied with, and not until then, all such packages shall be marked by the inspector in such manner as is provided by the regulations.

8. The inspector may at any time reinspect a carcase, or any portion or product thereof, in order to ascertain whether, subsequently to the first inspection thereof, it has undergone decomposition, or has otherwise deteriorated, or has been tampered with or adulterated by the use of preservatives or otherwise.

(2) Every carcase, or portion or product thereof, sent out of an establishment, and returned thereto for any purpose, shall not be again sent out therefrom without reinspection.

9. Every carcase, or portion or product thereof, found, upon inspection or reinspection, to be unhealthy or unfit for food, or which contains such ingredients or preservatives as may render it unfit for food, shall be marked by the inspector in such manner as is provided by the regulations, and shall thereupon be deemed to be condemned as unfit for food, and shall be disposed of as provided by the regulations.

10. Any person slaughtering, or permitting the slaughtering of animals and selling, or offering for sale or transportation, for export a carcase, or any portion or product thereof, which is unhealthy or unfit for food is guilty of an indictable offence and liable to one year's imprisonment.

(2) Every one who is convicted of this offence after a previous conviction for the same crime shall be liable to two years' imprisonment.

11. The provisions of sections 3 and 4 and of sections 6 to 10, both included, shall apply to such establishments only as are from time to time designated by order in council.

12. All articles prepared for food in any establishment and packed in cans or similar receptacles, or in any package whatever, shall be subject to inspection during the whole course of preparation and packing ; and all such packages shall be marked with :

(a) the initials of the christian names, the full surname, and the address, or, in the case of a firm or corporation, the firm or corporate name and address, of the packer ;

(b) a true and correct description of the contents of the package.

Provided, however, that if it be established to the satisfaction of the Governor in Council that such marking would hinder the sale of any of said articles in the British or foreign markets, he may exempt such articles from the provisions of this section.

13. All fish, fruit, or vegetables used in any establishment where these articles are prepared for export, shall be sound, wholesome, and fit for food ; and any such articles or products thereof found in the said establishment unsound or unwholesome shall be confiscated and destroyed as provided by the regulations.

14. An inspection and close supervision of the sanitary conditions of any establishments shall be maintained as provided by the regulations.

(2) The inspector shall refuse to inspect or mark articles in any establishment where the sanitary conditions are not in accordance with the regulations.

15. In the event of the provisions of this Act, or any regulations, or the lawful instruction of an inspector not being complied with in any establishment, the Minister may withdraw the inspector therefrom, and may refuse to it the inspection, marking, and certification of the articles prepared therein, and may cause the establishment to be closed.

16. No person shall offer or accept for export, or shall export, any articles subject to inspection under this Act, unless its requirements regarding inspection and marking have been complied with in respect to such articles.

(2) No clearance shall be granted to any vessel carrying any carcasses, or any portions or products thereof, unless they are duly marked in accordance with the provisions of this Act.

(3) The provisions of this section shall not apply to meats intended for consumption on board the vessels by which they are shipped from a Canadian port.

(4) At the request of the owner of any establishment, the inspector in charge thereof shall issue certificates of inspection for any carcasses or portions or products thereof intended for export. Such certificates shall be in such form as is provided by the regulations.

(5) Notwithstanding anything in this section, the Governor in Council may, whenever it is deemed necessary or advisable to do so, authorise the export of any such articles without inspection.

17. No article subject to inspection under this Act shall be offered or sold for export, or exported, under any name intended or calculated to deceive as to its true nature.

(2) No package containing any article subject to inspection under this Act shall be marked with any label, brand, or mark which falsely represents the quantity or weight or contents of such package.

(3) No package containing any article subject to inspection under this Act shall be marked with any label, brand, or mark which falsely represents the date when the articles or goods contained therein were marked.

18. Every person who, not being an inspector, wilfully alters, effaces, or obliterates, or causes to be altered, effaced, or obliterated, wholly or partially, any mark on any article which has undergone inspection, shall incur a penalty of one hundred dollars.

19. The Minister may appoint inspectors and other officers for the carrying out of the provisions of this Act, but such appointments shall be confirmed by the Governor in Council within thirty days of the date thereof.

(2) No person shall be appointed as a veterinary inspector until he has passed such examination as is deemed necessary by the Governor in Council.

20. The Governor in Council may make such orders and regulations, not inconsistent with the provisions of this Act, as to him seem necessary for the carrying out of the provisions of this Act.

(2) Such orders and regulations shall have the same force and effect as if embodied in this Act.

(3) Every such order or regulation shall be published twice in *The Canada Gazette*.

(4) Any such order or regulation may be proved by the production of a copy thereof certified by the Minister ; and such order or regulation shall, until the contrary is proved, be deemed to have been duly made and issued on the date thereof.

21. The certificate of the inspector or other officer appointed under the provisions of this Act shall, for the purpose of this Act, be *prima facie* evidence in all courts of justice and elsewhere of the matter certified.

22. Any inspector or other officer appointed under the provisions of this Act may, at any time, for the purpose of carrying into effect any of the provisions of this Act, enter any place or premises, or any steamship, vessel, or boat, or any carriage, car, truck, horse-box, or other vehicle used for the carriage of articles subject to the provisions of this Act, but shall, if required, state in writing the grounds on which he has so entered.

23. Every person who refuses to admit, or who obstructs or impedes, an inspector or other officer acting in execution of this Act, or of any order or regulation made by the Governor in Council or the Minister thereunder, and every person who aids and assists him therein, shall, for every such offence, incur a penalty not exceeding five hundred dollars ; and the inspector or other officer may apprehend the offender and take him forthwith before a justice of the peace to be dealt with according to law ; but no person so apprehended shall be detained in custody, without the order of the justice, longer than twenty-four hours.

24. Every person who moves, or causes or allows to be moved, any animal, or any article in violation of the provisions of this Act, shall, for every such offence, incur a penalty not exceeding five hundred dollars.

25. The provisions of *The Criminal Code* respecting the bribery and corruption of officials or employees of the Government extend to all inspectors and other persons appointed to carry out the provisions of this Act.

26. Every person who violates any provision of this Act, or of any regulation made by the Governor in Council or by the Minister under the authority of this Act, in respect to which no penalty is hereinbefore provided, shall, for every such offence, incur a penalty not exceeding five hundred dollars.

27. Any inspector or constable may, without warrant, apprehend any person found committing an offence against the provisions of this Act, and shall take any person so apprehended forthwith before a justice of the peace to be examined and dealt with according to law; but a person so apprehended shall not be detained in custody, without the order of a justice, longer than twenty-four hours; and any inspector or constable may require that any animal or any article moved in violation of the provisions of this Act be forthwith taken back within the limits of the place whence it was moved, and may enforce and execute such requisition at the expense of the owner of such animal or article.

28. Every offence against this Act, or against any order or regulation of the Governor in Council or of the Minister, shall for the purposes of proceedings under this Act, or of any such order or regulation, be deemed to have been committed, and every cause of complaint under this Act, or any such order or regulation, shall be deemed to have arisen, either in the place in which it actually was committed or arose, or in any place in which the person charged or complained against happens to be.

29. Every penalty imposed by this Act shall be recoverable, with costs, before any two justices of the peace, or any magistrate having the powers of two justices of the peace, under Part XVI. of *The Criminal Code*.

30. The administration of any part of this Act may be assigned by the Governor in Council to any Minister other than the Minister of Agriculture, and in such case the Minister to whom such assignment is made shall have the same powers with respect to the part of this Act to him assigned as the Minister of Agriculture now has.

31. The Government in Council may suspend the operation of any of the sections of this Act until the first day of January next.

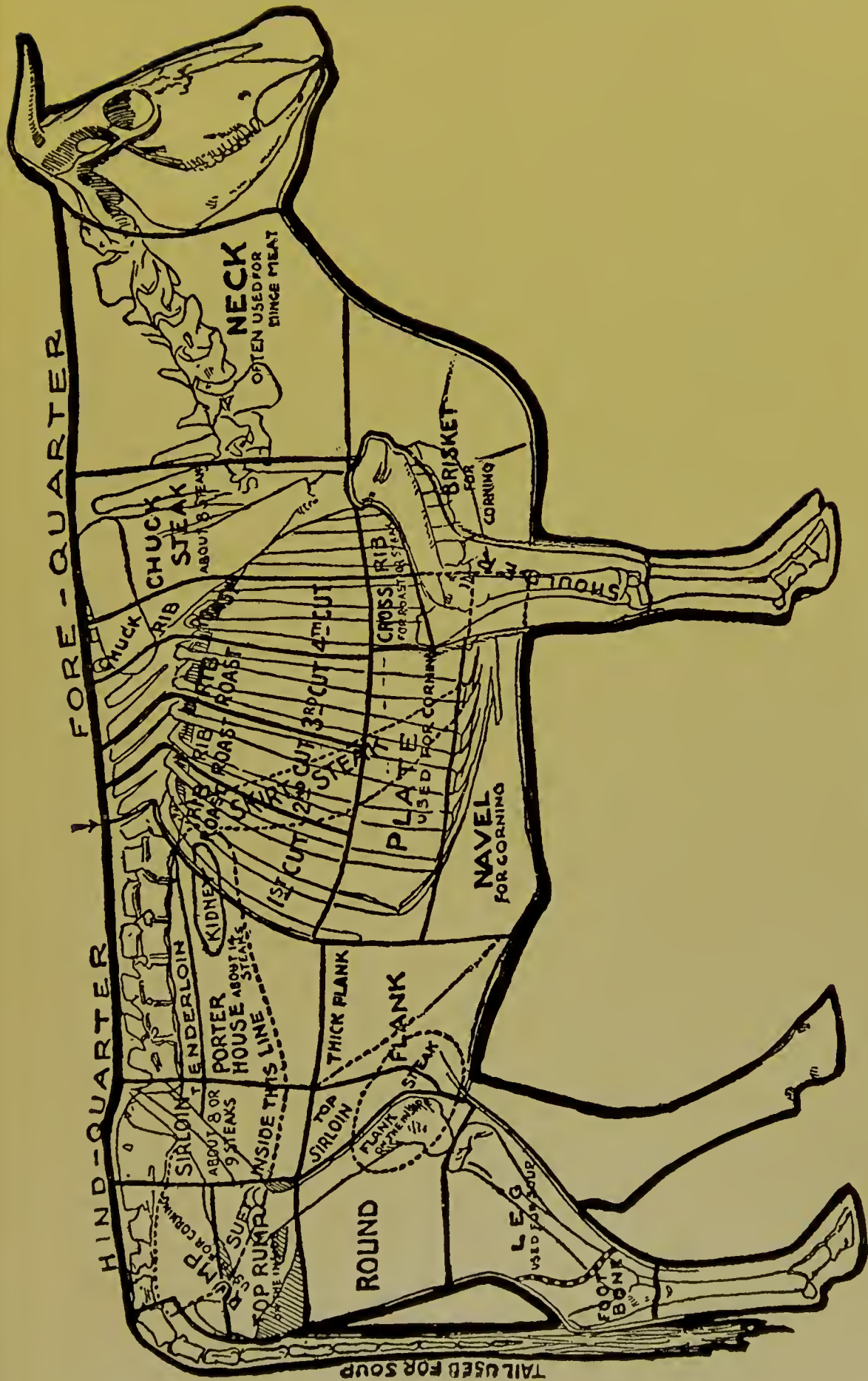
Judging a Fat Beast in Canada. The Canadian methods of judging cattle are somewhat different from those in use in other parts of the world, and a very good account of these is given by Professor G. E. Day, who contributed a great deal to the systematised study of various useful points in live-stock.*

* We are indebted to the *Farmer's Gazette*, Dublin, for the use of the illustration in connection with this article.

What to Look for. "The principles to be observed in judging a beef bullock," he says, "are somewhat different from those that guide us in judging breeding animals, for the reason that the finished bullock has completed his career, and we therefore examine him solely from the standpoint of his value for the block. It is a question of which animal will yield the largest amount of desirable carcase ; whether the carcase has a large amount of meat where it is most valuable, and a small amount where it is least valuable. On the other hand, in a breeding animal we have to look for breeding type, character, and constitution, and indications of future usefulness.

"For my part, in judging live-stock, I always like first of all to look at the animal from all points of view at a little distance, because it is the only way by which to obtain a proper estimate of the animal as a whole—whether he has depth of body in proportion to length of leg, and is well balanced generally. Having summed up the animal as a whole, we can come to the investigation of his particular points. The class under consideration is that of a beef animal, consequently we must lay special stress on those portions of the animal where we obtain the most valuable meat. As most of you know, the most valuable cut on the carcase is that lying right over the short ribs or loin ; it is what is called the porterhouse steak. It is in this part also where you get the tender under-cut, of which many people are fond. It is important that the animal should be extremely well developed over this particular part. Right back of that, beginning at the hooks and extending to a point in front of the setting on of the tail, is where you get the sirloin steak, which is nearly equal in value to the porterhouse, and in any ordinary market you will probably pay as much for it. Just in front of the porterhouse you have the rib roasts, which are also valuable cuts. After the butcher has cut off the sirloin, he cuts off the round steak, which is lower in value than the points I have mentioned. Therefore, in judging the fat bullock the points on top should receive special attention. A deep, strong, well-sprung rib which will give a broad back is of course desirable ; a wide, full loin, coming well out to the points of the hooks, is desirable, for the reason that this region contains so much valuable meat. An animal should be so well filled out that you can scarcely see where the hook points are. The flesh should be carried well down on the quarter. This meat is not the most valuable, but it has considerable value nevertheless."

Thickness and Quality. "Having present a framework with a large expanse for putting on valuable meat, the next question is to consider whether the meat is thickly placed on the parts where it is valuable, and then, whether it is of the right quality. The question of thickness and quality is hard to determine in a very fat animal. In a very fat bullock one very desirable thing is that he is exceedingly smooth. There are no rolls or ridges of fat ; no bunches of fat at the pin-points, while the shoulder is smooth and nicely covered. There is no indication of roughness or coarseness, and he possesses the merits of thickness and smoothness of flesh, which are two very important points. The faculty of determining



HANDLING MEAT IN CANADA

Diagrammatic view, showing a Canadian bullock divided into sections for meat trade purposes.

the character of the flesh in an animal while yet alive is an art only to be acquired by long experience. In a highly finished animal it is almost impossible to tell whether he will kill thick in flesh or whether he will have rather too little flesh and an excessive amount of fat. A bullock that is naturally thick-fleshed and has a large amount of lean down the back-bone, will carry more fat without its being undesirable than one which is thin in lean meat.

“In the case of a breeding animal, we should ask that he be low-set, deep in the body, thick through the heart, and of good girth. Why? For the reason that a short-legged animal is in reality an animal with good depth of barrel. If the barrel is shallow, it means the lack of feeding capacity—an animal that will not take the largest amount of food; and an animal to make good gains, must be a large consumer of food. We want depth in the region of the heart, not because this cut is valuable, but because it is an indication of constitution, and we know that an animal with a good top, such as the butcher demands, is almost always deep at this point. The flank is also important because it is associated with depth of body, which means feeding capacity, and more than that, it is usually associated with a pretty well carried down twist. Therefore an animal should be deep all along. An animal that has a thick, blocky body has usually a short neck, and is well filled in front of the shoulder, and an animal that is thick there usually possesses feeding qualities of a high order. The head must also receive the consideration of the feeder. Width between the eyes, a nice, clean-cut face below the eyes, with fairly prominent forehead, and a full bright eye are all indications of a good feeder. The eyes should be mild-looking, however. Fineness of bone below the knee indicates fineness of bone throughout the animal, while a broad muzzle and large nostrils indicate good lung-capacity. A mellow, elastic skin, and a thick furry coat of hair indicate a thrifty, vigorous animal and a good quality of flesh.”



6. SFM

